LOW-COST **SAWMILLS** Save big by harvesting your own lumber Page 76

Better Homes and Gardens®

WOOD®

ISSUE 125 AUGUST 2000

www.woodmagazine.com

simple

settee

(full-size patterns inside)
Page 70

Plus 9 more great projects for your home and shop

Including our kitchen butcher-block **work center**
Page 50

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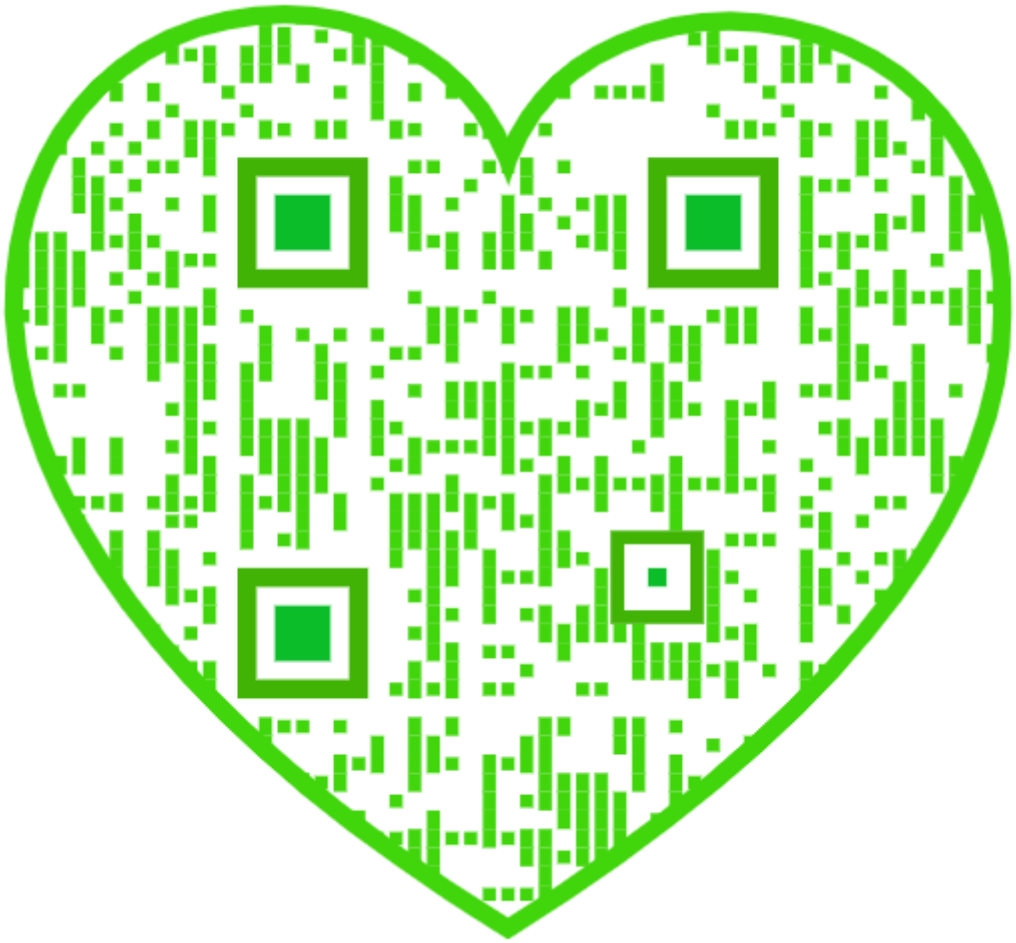


still going strong
after all these years

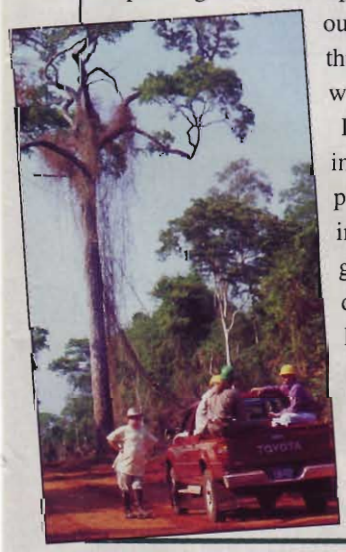
I've got to be honest with you. When I was named Editor-In-Chief of *WOOD*® magazine in the spring of 1984, it became clear to me in a hurry that to keep readers subscribing to this publication over the long haul, the staff and I needed to keep the magazine fresh and exciting. And more than once, I caught myself wondering, "Can we make magazines issue after issue that our readers just can't live without. Will we run out of great ideas after a few issues?"

Well, here we are at issue #125 and going great guns. And instead of running out of great ideas to share with you, we have more than ever. The only problem we have is getting them all in the magazine.

You only need to take a look at this issue to see that the excitement continues. On *page 44*, you'll find a piece titled, "The Adventurers of an Exotic-Wood Buyer." It chronicles an excursion that Keith Stephens, the owner of Woodworkers Source in Phoenix, Arizona, recently took to Paraguay in search of some of the world's most beautiful hardwoods.

And if you've been on the lookout for a nicely designed butcher-block work center for the kitchen, you'll want to look at *page 50*. This beauty is rock solid and ready for a lifetime of hard use.

Speaking of beautiful projects, why not add to your summertime enjoyment with our "Settee for Two" on *page 70*. It took a long time to get this design just right, but after considerable tweaking, we think we have a winner.



Looking for a great shop project? On *page 41* you'll find instructions for building a Collector's-Edition wooden block plane, our first attempt at this type of project. We're impressed with the way it shaves wood and handles end grain. And for all of you who have at one time or another dreamed of making your own woodworking lumber from logs, be sure to read our article about transportable sawmills. We field-tested five of them, and came up with findings that could influence your buying decision.

Larry Clayton

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Better Homes and Gardens®
WOOD®

JULY/AUGUST 2000 • Vol. 17, No. 5 • Issue No. 125

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Better Homes and Gardens® ***WOOD***® magazine (ISSN-0743-894X) is published nine times a year in February, March, April, May/June, July/August, September, October, November, and December by Meredith Corporation, 1716 Locust St., Des Moines, IA 50309-3023. Periodicals postage paid at Des Moines, Iowa, and additional mailing offices. Better Homes and Gardens trademark registered in Canada and Australia. Marca Registrada en México. **ONE-YEAR SUBSCRIPTION PRICES:** U.S. and its possessions, $27; Canada, $39; other countries, $47. Canada Post Publications Mail Sales Product Agreement No. 1369350. Canadian BN 12348 2887RT. **CANADIAN RETURN ADDRESS:** *Better Homes and Gardens* ***WOOD*** magazine, 2744 Edna Street, Windsor, Ontario, N8Y 1V2. **POSTMASTER:** Send address changes to *Better Homes and Gardens* ***WOOD*** magazine, P.O. Box 37439, Boone, IA 50037-0439.

this issue's highlights

WOOD® magazine August 2000 Issue 125 www.woodmagazine.com

tips & techniques

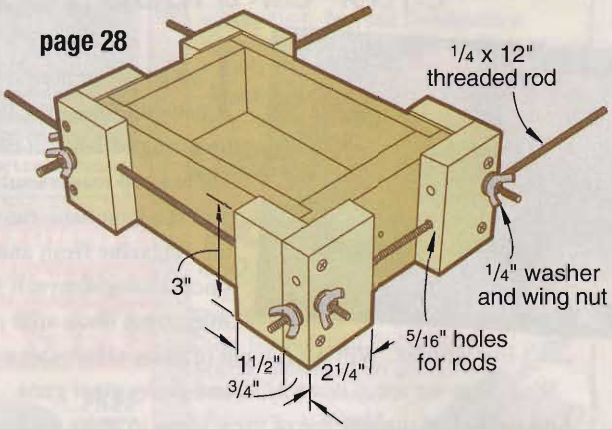
18 what woodworkers need to know
Get the lowdown on how to bleach color out of wood for a completely novel look.

20 hot off the internet
Tune into our online woodworking discussions about antique scrollsaws, cutting wood plugs, planing with a router, working with ash, and defining whitewood.

28 tips from your shop (and ours)

84 ask *WOOD*

90 the furniture repair shop
Have an appraiser value your antiques with these guidelines.



features

3 the editor's angle

10 talking back

16 *WOOD* ONLINE®

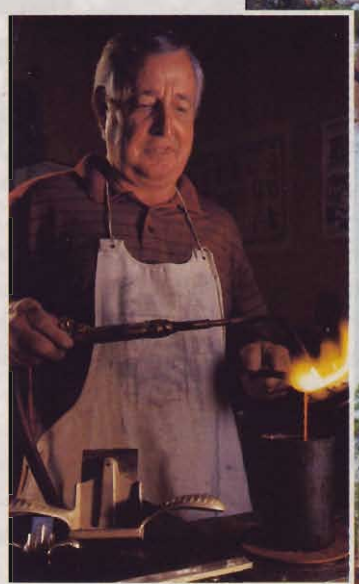
37 the story of wood
See what insects could eat your wood for breakfast, lunch, and dinner.

44 the adventures of an exotic-wood buyer
Travel with Keith Stephens, the president of the Woodworker's Source, as he visits the Yaguarete Forest in Paraguay to strike a deal on a container of tropical hardwoods.

56 amazing miniatures
Discover how Georgian Paul Hamler fashions his unique line of functional, scaled-down, antique hand tools.

87 wood anecdote
Find out why the American chestnut disappeared.

104 finishing touches


page 56

page 44

Continued on page 6

Continued from page 4

WOOD® magazine August 2000 Issue 125 www.woodmagazine.com

woodworking projects

14 adobe photo frame
Display three photos in this Southwestern-style project. Use our full-size patterns for guaranteed success.

26 great ideas for your shop
Make a mini router table for your high-speed rotary tool.

41 handcrafted plane
This eye-catching tool will fit comfortably in the palm of your hand while rendering years of quality service.

50 kitchen butcher-block table
Ever think about owning a solid maple table like the one at *right*? Make one with the complete instructions inside. Our design features a handy towel bar and knife drawer.

60 show stands for small stuff
Small accent pieces sometimes need help drawing attention. The four display stands in this collection do just that.

66 turned floral flask
Fashion a handsome canteen-shape pot that combines both solid stock and beautifully figured veneer.

70 settee for two
Perk up your outdoor spaces with seating that suits the environment. Our cedar two-seater features fresh looks and ample comfort, in addition to sturdy construction.

page 50

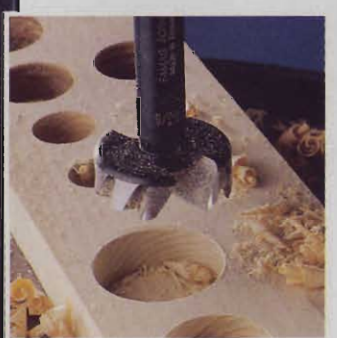
page 70

tools & materials

22 products that perform

64 what's what in oil finishes
Before you tackle your next project, study up on the varieties and merits of oil finishes. They apply easily, while offering a rich, natural appearance.

76 sawmill showdown
Harvest your own lumber with one of the five models in our field test. You'll find out why owning a mill makes good economic sense for some woodworkers.



page 22

page 22

talking back

Where Readers Speak Their Minds

We welcome your comments, criticisms, suggestions, and yes, even compliments. We select and publish only letters of the greatest benefit to our readers. Write to:

Talking Back,
***WOOD*® Magazine,**
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Des Moines, IA 50309-3023

Air cleaning system

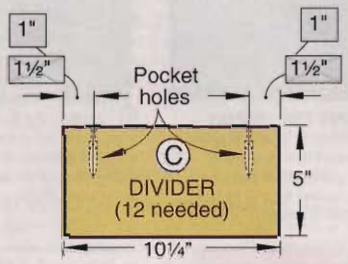
In Issue 120, Winter 1999, page 70, you describe how to make a whole-shop air cleaning system. The basic idea is a good one, but you overlooked an important feature—an access door.

—John R. Bergman, Milton, Wis.

You're right, John, you do need access to the inside of the cabinet. That's because you need to oil the bearings in some blower motors, and check the drive belt tension periodically. To provide access, replace the screws that fasten the side (E) on the pulley side of the blower with hanger bolts and wing nuts. Locate the switch or junction box in one of the other panels.

Apothecary's Friend

Two drawings, the Parts View drawing on the *WOOD PATTERNS*® insert and the Divider detail on page 53 in the Apothecary's Friend in Issue 120, Winter 1999, show different locations for the same pocket holes. See the drawing *below* for the correction to the divider on the Parts View drawing.



DeWalt 18-volt battery packs recalled

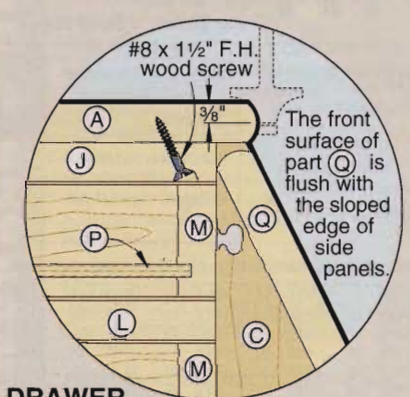
Do you own an 18-volt DeWalt cordless tool? If so, you'll be interested to know that DeWalt is offering a free repair kit for DW9095 18-volt battery packs sold between May 1997 and June 1998 (date codes between 9719 and 9810). The clips on the battery pack may fail to fully engage the tool, causing the battery pack to fall off. Call DeWalt toll-free at 877/457-0478 between 8:00 a.m. and 4:30 p.m. eastern time, Monday through Friday.

Righting the writing desk

A phone call from a reader alerted us to a couple of errors in the Drop-Front Writing Desk project in Issue 120, Winter 1999. The Drawer Unit Mounting detail on page 63 is drawn incorrectly. When the drop leaf panel (Q) is closed, its outside surface is flush with the sloped edge of the side panels (C), as shown on Drawing 1. In the Bill of Materials on page 64 and the Drawer drawing on page 66, the length of the drawer sides (N) should be 10½", as shown on Drawing 2.

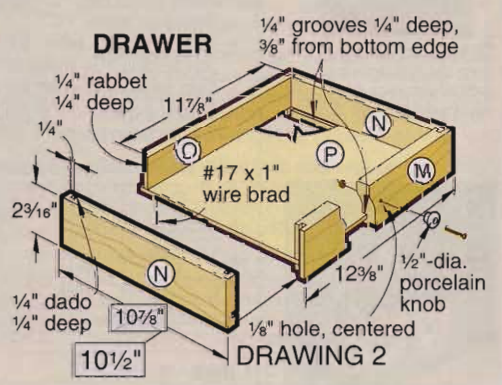
Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
N drawer	½"	2³⁄₁₆"	10½"	P	8



DRAWER UNIT MOUNTING DETAIL

DRAWING 1



DRAWING 2

Not sure of Shaker saw blade

I've been an amateur woodworker all my life, and a historic interpreter in the carpenter shop at Shakertown in Pleasant Hill, Harroldsburg, Kentucky, for the past 10 years. I read with interest "The best of Shaker" entry in "12 top vacation stops for adventurous woodworkers" in Issue 120. Not to detract from Tabbatha Babbit's 1810 contribution of the circular-saw blade, our research shows that circular saws were used by British Royal Navy shipbuilders as early as the 1790s.

—Lawrence Ray, Jr., Harroldsburg, Ky.

We can't find reference to agree or disagree with your saw-blade research, Larry. Perhaps Sister Babbit brought the circular-saw blade idea from England with her and adapted it. Also, Spring Hill, as mentioned in the piece, should have been Pleasant Hill.

Continued on page 12

Continued from page 10

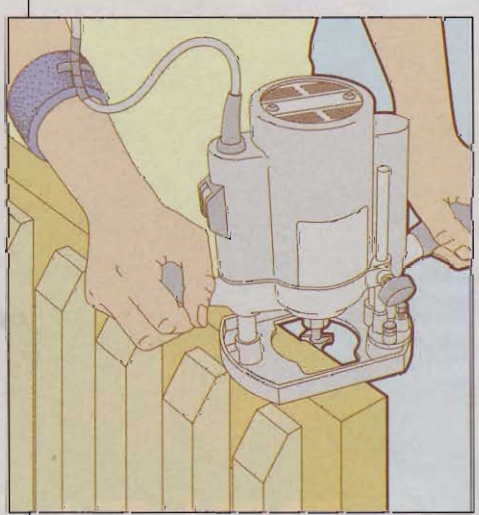
Securing a power cord with a sweatband could be trouble

I'm writing because of some serious safety concerns with a tip presented in Issue 121's "TIPS from your shop (and ours)" on page 31. It suggests using an athletic sweatband to secure a portable power tool's cord to your arm while using the tool.

Having been an emergency room nurse for 10 years prior to starting my own woodworking business, I've seen hundreds of tool-related injuries. Every victim was amazed at the speed in which the accident occurred. With the sweatband securing the cord, a tool would swing into the user if it were dropped. If the user accidentally fell, the secured tool would be pulled down onto the body.

I like the idea of keeping the cord visible and out of the way with a sweatband, but here's a safer modification: Attach a small piece of Velcro to the sweatband and the mating piece to the cord with glue or tape. Then, the cord will easily separate if a fall or drop happens. And if you need to put down the tool to pick up glue or change a bit, the cord removes easily without unplugging it.

—Mitchell Neal, Dayton, Ohio

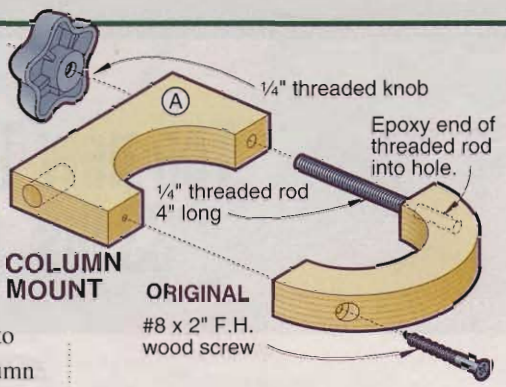


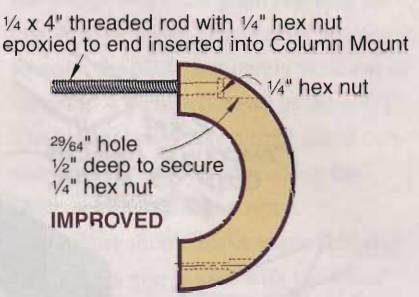
Make a stronger column mount

When I built the Drill-Press Dust Collector shown in issue #119, the threaded rod on the column mount pulled out as I tightened the knob. But here's a way that I found to modify your design for a secure column mount that won't twist either. (See drawing *right*.)

Drill the 9/32" hole completely through the support. While still set up on the drill press, drill a 29/64" hole 1/2" deep on the outside of the same piece. Epoxy a 1/4" nut to one end of the 1/4" threaded rod and insert the other end of the rod into the hole from the outside. Next, put a washer and 1/4" nut on the threaded rod and tighten the nut down to the wood with a wrench. This pulls the expoxied nut into the hole, preventing the threaded rod from pulling out when you later tighten it with the knob.

—Phillip Watkins, Blowing Rock, N.C.




1/4 x 4" threaded rod with 1/4" hex nut epoxied to end inserted into Column Mount
1/4" hex nut
29/64" hole 1/2" deep to secure 1/4" hex nut
IMPROVED

Router-table twin

Thank you for testing router tables in issue #122. To set the record straight, readers should know that Bench Dog, Inc. manufactures CMT's Industrio router-tables. We also market these router-tables and other tools under our own name. If you are interested in our products you can call us at 800/786-8902 or surf our site at www.benchdog.com.

—Norston Fontaine, Bench Dog, Inc, Minneapolis, MN

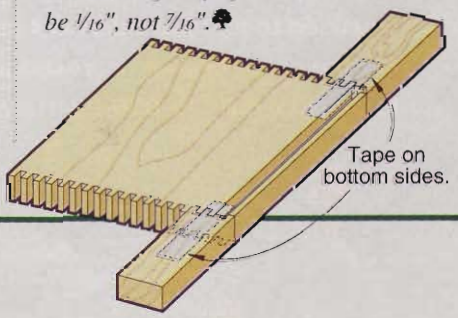
Shimmed finger won't snap off

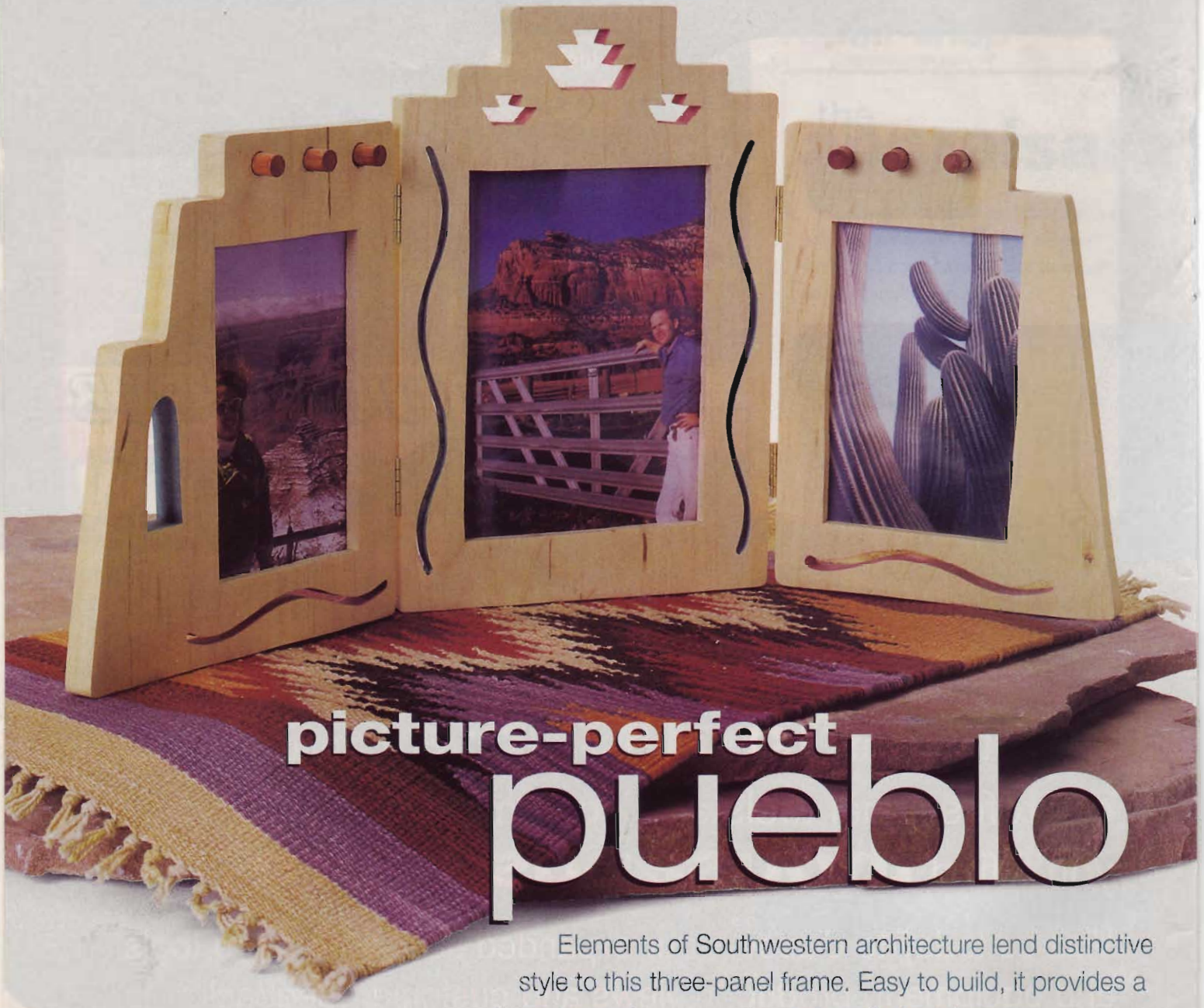
In the Not Such a Nutty Idea project published in issue #118, you advise forming the 1/4" stopped grooves 1/4" deep on the inside face of the sides and ends (parts A, B) with a router and 1/4" slot cutter.

I've found that when you cut that close to the ends (3/16"), the fingers can't withstand the torque of the router and they sometimes snap off. But if you cut matching finger joints in two pieces of scrap, slide them horizontally into the fingers of the sides and ends, then tape them in place [as shown *right*], you can then rout the grooves without damaging the fingers.

—Mark Carpenter, Long view, Wash

Many thanks for your tip, Mark. Since your letter came in, we've also found that the thickness of the 2×15" brass sheet shown in the lower right corner of the drawing on page 87 should be 1/16", not 7/16".





picture-perfect pueblo

Elements of Southwestern architecture lend distinctive style to this three-panel frame. Easy to build, it provides a fitting home for some of your favorite travel photos.

Scrollsaw three southwest walls

1 Cut one piece of solid stock ½×7×9", one piece ½×7½×9", and one ½×7½×11". (We used ¾" basswood, which we planed to thickness. Other light-colored hardwoods, such as birch, would work. Or, you could make the frame from pine, cedar, or some other available softwood.)

2 Photocopy the full-size patterns for the three frames. (See the *WOOD PATTERNS®* insert.) Adhere each pattern to the appropriate piece of wood, using spray adhesive.

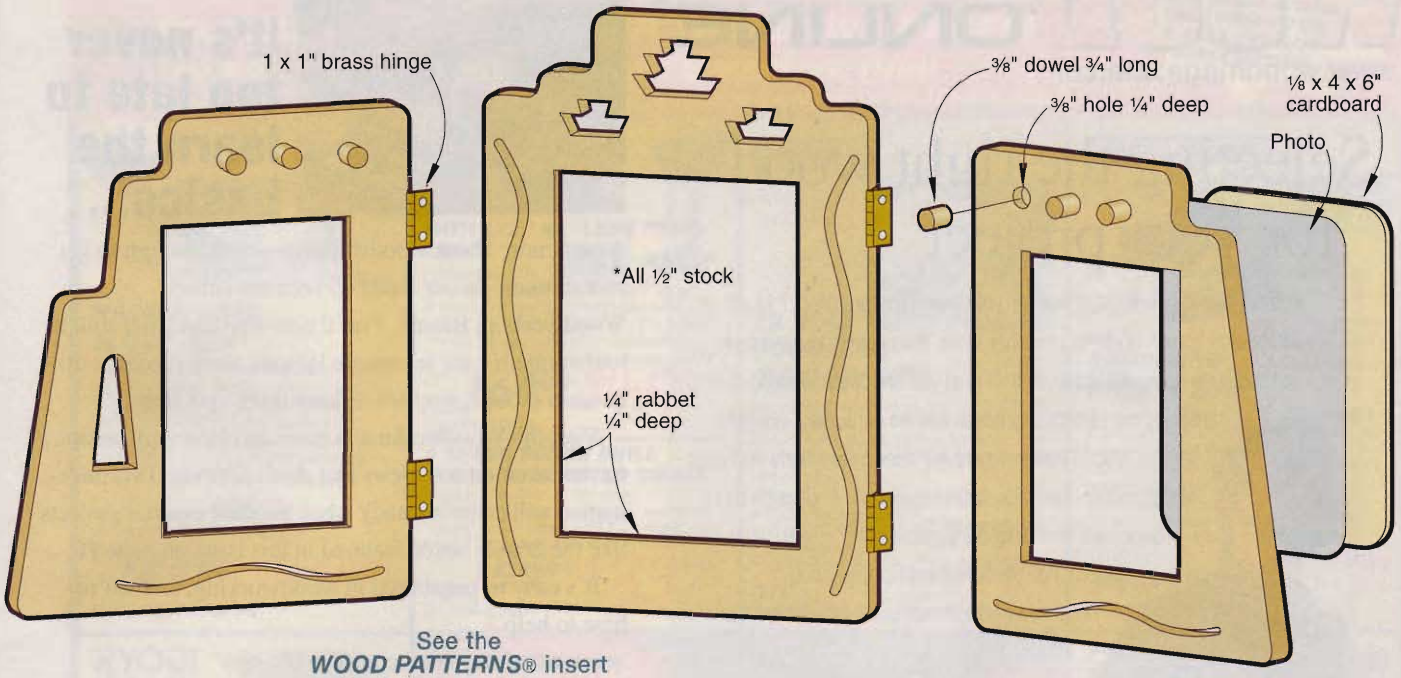
3 Drill the six ⅜" holes where shown. (Lengths of ⅜" dowel rod will go into these holes; measure the dowel you'll be using, which could be undersized, and drill holes to fit it.) Sand off any fine splintering around the holes.

4 Drill ⅛" blade start holes inside the picture openings and the cut-out design features. Drill the holes near an end or a corner, but be sure not to drill them right on a cutting line.

5 Scrollsaw around the outside pattern line. A #7 blade (.045×.017" with 11½–14 teeth per inch) works well. (See the box, *opposite page*.)

6 Cut out the design elements, threading the blade through the start holes. Take care to keep the sides of the wavy lines parallel.

7 Cut out the picture openings. To make these long, straight cuts, change to a wider blade. A standard #12 blade, measuring .062" wide, would be fine. And many dealers sell even wider ones, ranging from .070–.110". Cut on the line and sand off any saw marks.

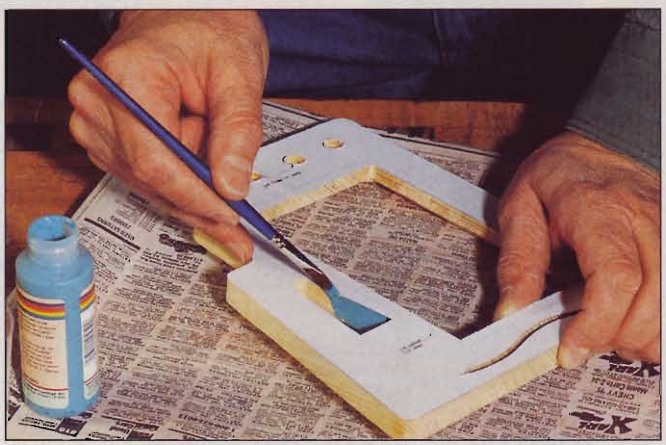


See the ***WOOD PATTERNS®*** insert for full-size patterns.

ATTENTION SCROLLSAWYERS:

reverse-tooth blades
reduce tearout

Cutting with a reverse-tooth blade, designated as a #7R, will reduce tearout and splintering on the back of your workpiece, thanks to several teeth at the bottom that cut on the upward rather than the downward stroke. You'll have to hold the work against the saw table more firmly when you use one.



The paper pattern masks each frame front while you are painting the design cutouts.

Join the panels into one frame

1 Rout a ¼" rabbet ¼" deep around the picture opening on the back side of each panel. A piloted rabbeting bit chucked in a table-mounted router does the job easily and cleanly.

2 Paint the inside edges of the cut-out design features with acrylic craft paints, as shown in the photo *above right*. You can follow the scheme shown in the opening photo (dusty rose and turquoise) or apply your favorite southwest colors. Brush on the paint carefully. (The pattern helps mask the front, but don't let paint creep under the edges of the paper.)

3 Peel off the patterns, and remove any traces of adhesive from the wood. After the paint dries, sand the front and back with 150-, 180-, and 220-grit sandpaper. Sand slight round-overs along the outer edges for a soft look.

4 Cut six ¾" lengths of ⅜" dowel rod. Stain or paint them brown. Glue them into the holes in the side panels.

5 Apply a clear finish overall. (We sprayed on semigloss lacquer.)

6 Join the three frame sections with 1×1" brass hinges, as shown on the Exploded View drawing. Drill pilot holes for the small hinge screws to make driving them easier.

7 Cut three pieces of thin cardboard, such as a tablet back, to fit inside the rabbeted openings. Then insert the photos and cardboard backings into the openings. Secure each with small brads or push points driven into the side of the rabbet.

Project design: **Christine Anderson**
Illustrations: **Roxanne LeMoine; Lorna Johnson**
Photographs: **Hetherington Photography**

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Selecting the right wood for your project

Puzzled by which wood to use for your next furniture piece? Much of the choice comes down to personal taste, then cost and availability. But until you know the qualities that help you choose one wood over another, the selection process can be confusing. For help, turn to Wood Profiles where we showcase nearly 30 types of commonly used woodworking woods. And, learn more about our choice of hard maple for the butcher block featured in this issue.

http://www.woodmagazine.com/wdprofile/

it's never too late to learn the basics...

Learn more about woodworking—even enough to get you started—in our latest 15 sections called Woodworking Basics. You'll also find link after link to tool comparisons, technique lessons, shop projects, discussion groups, a woodworking mall, and more.

Visit the Woodworking Screws and Fasteners section for information on screws that don't corrode. This information will come in handy when building outdoor projects like the double settee featured in this issue on *page 70*.

It's easy to get started in woodworking, and we're here to help.

www.woodmagazine.com/woodbasics/

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Downloadable Plans

With so many traditional icebox plans on the market, we decided that something different might be in order. We chose the 28"-tall "ice chest" shown here for our plan. Download the plan, with complete instructions and detailed drawings, from the Downloadable Plans section of the WOOD STORE for just $5.95.

http://store.yahoo.com/woodstore/

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Benefits include: Monthly Tool Sweepstakes, Free Downloadable Plan, Monthly Newsletter, and the Gift Registry at the WOOD MALL™.

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get the color out with wood bleach

After bleaching, the oak and walnut are the same color. The grain remains visible in both pieces.

When it comes to altering the color of wood, woodworkers routinely turn to stains to give wood more—or a slightly different—color. But wood bleach lets you remove color from wood.

Look for a two-part bleach to do the job

You'll find three kinds of products marketed as wood bleaches. But only one will remove the natural color from wood: a two-part wood bleach of sodium hydroxide (caustic soda) and hydrogen peroxide. Other wood bleaches are chlorine bleach and oxalic acid.

Chlorine bleach, which is like ordinary laundry bleach, will remove dye color from wood, but not the wood's natural color. Oxalic acid is commonly employed to bleach out water or rust stains. Teak stain remover sold by boat dealers is often based on oxalic acid.

All the bleaching chemicals pose health and safety hazards to varying degrees. So be sure to read the manufacturer's instructions and warnings before use. And always wear rubber gloves and eye protection around bleaches.

Work fast after mixing the two chemicals. The solution begins to neutralize—and lose bleaching power—just as soon as you start to pour the liquids together.

Why would you remove the color from wood?

Wood bleaching proves useful in situations like these:

- When the wood you have is too dark for a particular project. In this case, removing some of the color from the wood might make it more suitable, or would allow you to stain the wood to a lighter color.
- When you have several boards of the same wood for one project and they vary in color. Here, you can bleach one or more of the boards to match the others. Or, you might bleach all the boards and stain them to a consistent color.
- When you want to stain one wood to look like another. Removing the natural color from a wood makes matching the color of another wood easier. If you bleach both woods, you can stain them both the same color.

Now, kiss that color goodbye

The Wood-Kote brand bleach we tried comes, like most, in two bottles. To use it, mix equal parts of the two liquids in a glass or plastic container, as shown at *left*. Never put either chemical into a metal vessel. (Some bleaches call for applying the two parts separately. Follow the instructions for the one you're using.)

Once mixed, a chemical reaction begins, wherein the hydrogen peroxide, an oxidizer, acts to neutralize the caustic sodium hydroxide. Neutralized, the solution loses its bleaching power, so mix only what you can use immediately.

Quickly apply the solution to the wood. A sponge makes a good applicator, as shown *below*. Keep the surface uniformly wet to minimize streaking. (We held the board at an angle and worked from the bottom up, as shown.)

Rinse the solution off the wood with water. To ensure that no caustic soda remains behind, rinse the wood with a mild acid—white vinegar works well—then rinse it once more with water.

After the wood dries, assess the color. You can bleach wood as many times as needed to achieve the color you want. (We bleached the pale piece of red oak in the photo *above* twice, and made three applications to the walnut sample.)

Allow the wood to dry thoroughly. Sand with 320- or 400-grit sandpaper, just enough to remove the fuzzy grain from the surface.

Apply the bleach as evenly as possible, and keep the surface wet as you work.

hot off the internet

Comments, answers, and ideas from our WOOD ONLINE® discussion groups at www.woodmagazine.com

***Note**: We have edited all entries in the interest of brevity and clarity while preserving the intent of the original message. Opinions expressed here are those of our online participants.*

He's searching for an antique scrollsaw or reproduction model

Does anyone know where I can purchase an antique scrollsaw? The ones I'm looking for are like bicycles—you sit on a seat and pedal to make the blade go up and down. Or how about a company that makes reproductions of an old scrollsaw?

—Bill Kerr, Everett, Pa.

• A good starter old saw is the New Rogers. They're very common and easy to find. Unfortunately, they do not cut very well, at least not in ¾" or 1" wood. If you can find either a Star or a model 387, both made by Millers Falls (like the New Rogers), they cut better. There were many companies that made saws from the latter part of the 1800s to the early 1900s. My personal favorite is the Barnes No. 7.

—Tony Burns, Fredonia, N. Y.

• There's an outfit called The Tool Company Inc., at 812 N. Kurzweil Rd., Raymore, MO 64083, that makes a reproduction of the Barnes Velocipede. Its phone number is 816/331-4499. [The company also carries replacement parts — The Editors.]

—Michael J. Moffet, Foresthill, Calif.

• Doug Cunningham in Tennessee has Barnes Velocipede antique scrollsaws for sale. They're the real thing, not the reproduction. You'll pay at least $1,500. He has a huge collection and many for sale. Contact: Doug Cunningham, 117 Eagle Lodge Road, Rockwood, TN 37854, phone 865/354-0039. Tell Doug I told you to contact him.

—Tom Sevy , Salt Lake City, Utah

What's the ideal speed for cutting wood plugs?

I just bought some plug cutters. What is the best speed to set the drill press when using them? When I went too fast, they burned, too slow they hesitated, and they stalled while I was cutting walnut. Was it the wood?

—Tony Falotico, Lake City, Fla.

• Cut plugs at 1,000 rpm for softwoods and 500 rpm for hardwoods.

—Dave Lehnert, Milford, Ohio

• Dave's suggestions agree with the recommendations on the *WOOD*® magazine drill press speed chart. This chart gives speeds for many other drilling and sanding accessories, and you can get a free copy by going to the WOOD ONLINE home page and clicking on FREE Charts. From that page download the Drill Press Speed Chart on your printer.

This handy reference aid was developed through our own in-shop tests. My copy of this chart hangs next to my drill press, and probably has saved me a small fortune in Forstner bits that I was previously running too fast.

—Marlen Kemmet, WOOD ONLINE

• When using my Lee Valley tapered plug cutters, I always spray them with Bostik DriCote lubricant (catalog item #10120, $13.99 plus shipping for 10.75 ounces from Tool Crib of the North, 800/635-5140). If a plug jams and breaks off during cutting, just give it another shot of DriCote. The stuff works great on bandsaw blades, router bits, mortising chisels, etc.

—Bob Best, Niagara Falls, Ont.

• I recommend that by trial-and-error you also find the best press-down strength to avoid burning and stalling problems. Some better plug cutters are internally tapered (conic), which eliminates retention or burning of the plug. I use plug cutters acquired from Lee Valley Tools; they work quite well.

—Marco Aurelio R. Guimaraes, Belo Horizonte, Minas Gerais, Brazil

Dust collection: Put it wherever you want it

Thanks to increased awareness of the hazards of workshop dust, collecting it from some woodworking power tools is nearly automatic. But for others, collecting debris at the source is nearly impossible. Wouldn't it be nice if you could position a vac hose right where the action is, yet adjust it without hassling with clamps? Loc-Line Modular Vacuum Hose lets you do just that.

It's modular because the flexible hose consists of individual ball-and-socket joints, similar to the ball joints and tie-rod ends on your car. But in Loc-Line's case, the joint is hollow like a hose, allowing dust and chips to flow through. This tight-fitting ball-and-socket configuration is virtually air-tight and allows you to place the business end of the hose exactly where you want it.

However, unlike flexible hose, it stays put. In fact, I found that the segmented hose supported itself for at least 3' without sagging. I mounted Loc-Line between my shop's rigid ductwork and my drill press. With little effort, I put the tip of the nozzle a fraction of an inch from both the workpiece and bit, without touching either.

Although the manufacturer offers connectors to fit 3" DWV or metal ductwork, they don't currently have one to fit 4" systems like mine. However, a Loc-Line official told me they're working on 4" to 3" and 2½" to 3" adapters to simplify hook-up to standard-size dust-collection systems and vacuum hoses.

To see if this unique product would choke-up on chips, I sucked a whole garbage bag full of planer and jointer waste through it with nary a plug. During this test, I did notice some static-induced dust buildup on the outside of the hose; Loc-Line also comes in an anti-static version if you don't mind spending about 15 percent more.

This brings me to my only complaint: At $13.95 per foot for the hose (nozzles, blast gates, and adapters are extra), you probably won't want it on every tool in your shop. But, for situations where you need maximum flexibility in dust collection, it's worth a hard look.

—Tested by Dave Henderson

PRODUCT SCORECARD

Loc-Line modular vacuum hose

Performance	★ ★ ★ ★ ★
Price	$13.95/ft., hose; $4.95, nozzle; $11.95 blast gate
Value	★ ★ ★ ★ ★

To locate a dealer, call Lockwood Products at 800/423-1625.

Make flat-bottomed holes with cool-running bits

You can bore a straight, flat-bottomed hole with any Forstner-style bit on the market. Too often, however, they cut slowly and generate enough heat to burn the edges of the hole as well as ruining the steel cutting edge. But that's not the case with Bormax bits.

A standard Forstner bit relies on its solid outer rim to cut, and two gullets to eject waste. And that rim gets awfully hot as you force it into your workpiece. However, the Bormax design features five cutting teeth and gullets ground into the rim of each bit. The rim actually helps cut through and remove the wood instead of just going along for the ride.

I bored holes in oak, pine, and maple, comparing each Bormax bit to a solid-rim bit of the same diameter. The Bormax bits required nothing more than constant, easy pressure, and produced holes with glass-smooth sides and no burning (foreground holes in photo at *left*). As for heat buildup, even when I drilled 2" deep the temperature of the Bormax bits never rose past "warm to the touch," while the other style turned blue from the heat.

The set I tested—⅝", ¾", 1", 1⅛", and 1³⁄₁₆"—come in a fitted wooden box. They're about twice the price of high-speed steel bits, and about on par with carbide bits, but worth every penny for the clean cut they leave. You also can buy them one at a time as needed.

—Tested by Bob McFarlin

PRODUCT SCORECARD

Bormax hole-cutting bits

Performance	★ ★ ★ ★ ★
Price	$110, boxed set of five
Value	★ ★ ★ ★ ★

Call Woodcraft Supply at 800/225-1153.

Continued on page 24

Continued from page 22

An economical and accurate way to set things straight

I don't often recommend buying alignment or set-up tools. They're usually expensive, and you probably won't use them all that often. But if your work requires dial-indicator accuracy, the TS Aligner Lite—or its upgraded brother, the TS Aligner Jr.—might be just the answer to your setup woes.

You can use the TS Aligner Lite, shown in the photo at *far right*, to align everything on your tablesaw—blade to miter slot, fence to blade, miter gauge squareness, and more. One thing I liked about this accessory is the post that lowers the dial-indicator's stylus to near-tabletop height. That allowed me to use the widest part of my saw blade to accurately measure runout. Besides tablesaw setup, you also can use the TS Aligner Lite for various alignment tasks on your bandsaw, jointer, shaper, and drill press.

Now, if you really want to get into tuning up your power tools, consider stepping up to the TS Aligner Jr. This kit includes everything you get in the Lite version, plus a precision steel rod and an additional aluminum extrusion (shown chucked into a drill press in the photo *above left*) to use for aligning your drill-press table and jointer knives.

I've used all kinds of dial indicator gauges to set up and test tools, and built fixtures to go with them. Still, I'm impressed by the design of this system. It's compact, easy to set up, and quite versatile with its interchangeable parts.

—Tested by Bob McFarlin

PRODUCT SCORECARD

TS Aligner Lite and TS Aligner Jr.	
Performance	★★★★★
Price	$70, Lite; $140, Jr.
Value	★★★★½

For more information, call the Ed Bennett Company at 800/333-4994, or visit www.primenet.com/~ejb/.

Biscuit Master makes you a big winner at slots

Cutting a biscuit slot looks simple enough, but it actually requires you to apply pressure in several directions at once to get a perfect result. You can clamp the workpiece to your bench, but if you're slotting many pieces, such as when making face frames, you spend more time clamping than actually cutting. Woodhaven's Biscuit Master solves that problem with fences that hold the workpiece in place and guide the biscuit joiner, too.

The keys to the system are phenolic plates that ride in machined slots to keep everything perfectly square. Snug a pair up on either side of your biscuit joiner and they provide a positive guide, yet still allow you to remove the router for the odd cut. The L-shaped plates adjust left and right to fit stock for end-cuts, while the rectangular plates below slide forward and back to position edge-cuts.

I tested the Biscuit Master on the sides and ends of boards, and on bevel and miter joints, and it worked wonderfully every time. A pivoting post slides into the T-track to provide accurate positioning for plunge cuts on mitered ends; a short fence rides in the same slot to establish bevel-plunges.

The only drawback I could find is that the Biscuit Master won't handle anything over 5¾" wide, which leaves out the big panels used in cabinets. But such pieces are large enough to be slotted freehand, so I give this unit a top rating.

—Tested by Dave Henderson

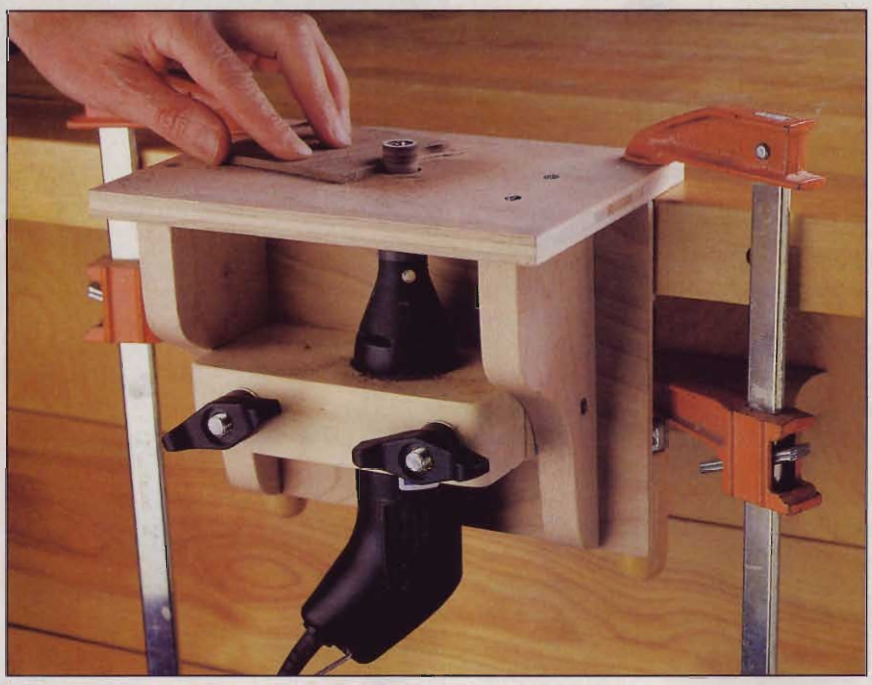
PRODUCT SCORECARD

Biscuit Master	
Performance	★★★★★
Price	$80
Value	★★★★★

Call Woodhaven at 800/344-6657.

mini router table

for rotary tools

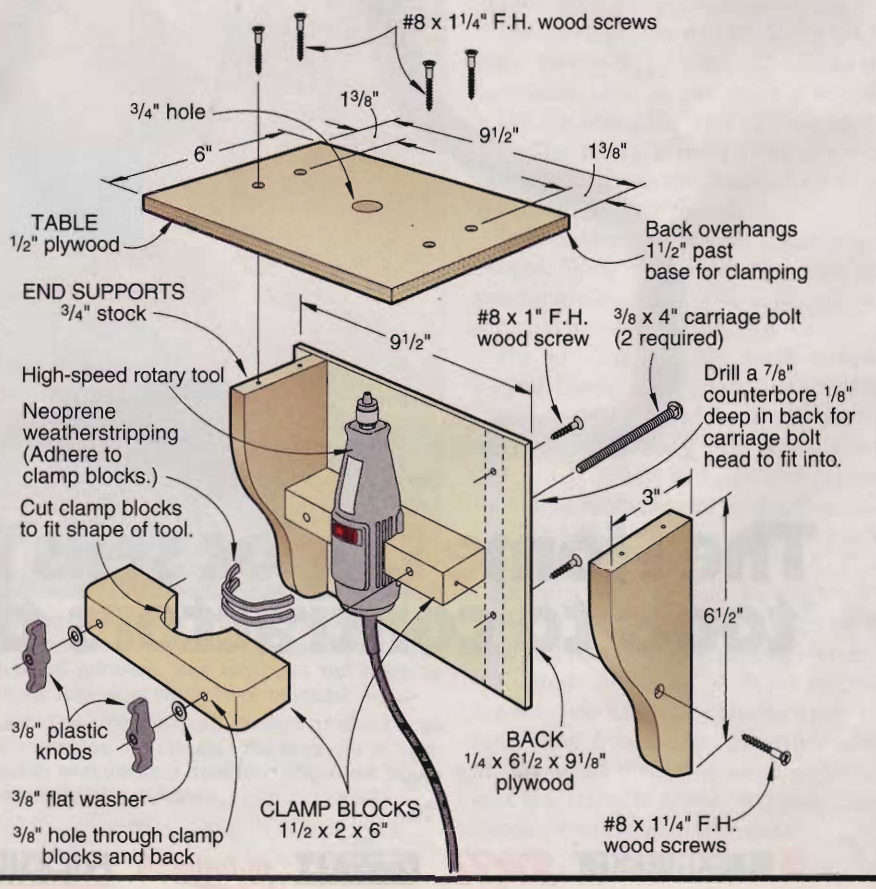


Small pieces often require precise routing that just isn't safe on a full-size router table. And, trying to shape the workpiece in one hand with a rotary tool held in the other isn't any better. To solve the problem, *WOOD®* magazine reader Chuck Middleton built this scaled-down table to house his high-speed rotary tool.

To make your custom holder, start by cutting clamp blocks to fit the body of your rotary tool. Line the inside curved surface of the blocks with weatherstripping or some type of foam. The foam allows you to secure the rotary tool between the blocks without cracking the tool housing when tightening the blocks around the tool. Now, cut the table, end supports, and back to the sizes shown on the drawing *below right*. Assemble the table. Secure your rotary tool in place, being careful not to overtigthen the knobs. Mark the hole location needed for your largest rotary bit, remove the table, and drill the hole. Screw the table back in place.

Clamp the mini table to your workbench as shown in the photo, or slide one of the protruding ends of the back into a flush-mounted bench vise.

For really small pieces, we prefer to hold the workpiece with a miniature clamp, or even secure the workpiece to the end of another piece of wood with double-faced tape or hot-melt glue. This keeps our fingers safely away from the spinning bit.



Project Design: **Chuck Middleton, Sulphur, Louisiana**
Illustrations: **Kim Downing**
Photograph: **Hetherington Photography**

Kevin Matocha took a swing at our Top Shop Tip and connected, big-time. He turned this bat while in high school.

For submitting this issue's Top Shop Tip, Kevin Matocha scores a CMT router table and set of bits. Congrats, Kevin!

Kevin Matocha believes in learning from his elders. That's why he went from his Troy, New York, home to Corpus Christi, Texas, last summer to learn bowl-turning from his grandfather. Learning must be high on Kevin's list because he's also earning his doctorate in electrical engineering.

When he's not hitting the books, our Top Shop Tip winner likes to hit a softball or two. Kevin still uses the bat he turned while attending high school in Arkansas. "Actually, this is the second bat I made; I busted the first one," he says.

Tell us how you've solved a problem in your shop, and you might hit a home run like Kevin. For every tip we print, we pay $75, and if yours is judged our Top Shop Tip for the issue, you'll also receive a tool prize worth at least $250.

Send your best tips, along with sketches or photographs and your daytime telephone number to:

Tips From Your Shop (and Ours)
***WOOD*® Magazine**
1716 Locust St., GA-310
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Or post your tip on our Top Shop Tip discussion-group at **www.woodmagazine.com**.

Sorry, but we can't return your submission. And, because we try to print only original shop tips, please send your ideas only to *WOOD* magazine. Thanks!

Dave Campbell

WOODWORKING PRODUCTS EDITOR

No oxygen-blocker? Make your own

To keep finishes and paints from skinning over in the container, you need to create some kind of barrier between the oxygen in the can and the finish. You can buy inert gas products to form an invisible barrier, but what if you don't have any on hand? Here's a quick and inexpensive solution.

In the bottom of a clean half-gallon container, put a teaspoon of baking soda, then pour in a quarter cup of vinegar and swirl the mixture. The bubbling reaction creates carbon dioxide—an inert gas about 1½ times as heavy as air. (Those measurements yield about 2 quarts of carbon dioxide.)

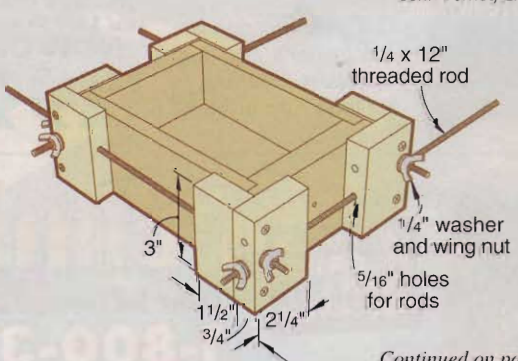
As the reaction slows, quickly pour the gaseous contents of the container (NOT the sludgy remnants) into your can of finish, and reseal the can. The carbon dioxide replaces the air in the can, providing a protective barrier over the finish.

—Kevin Matocha, Troy, N.Y.

This frame clamp is a square deal

I put together the clamp, shown *below*, with about $5 worth of materials. That modest investment gave me an easy, accurate way to clamp small boxes, drawers, and frames. I put wax paper at each joint, slide the hardwood corner blocks into place, and check for squareness as I gradually tighten each wing nut.

—John Vernet, Ellijay, Ga.



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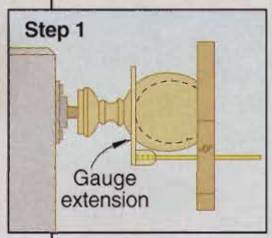
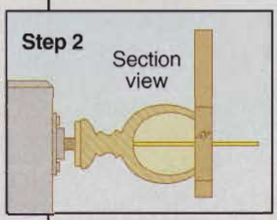
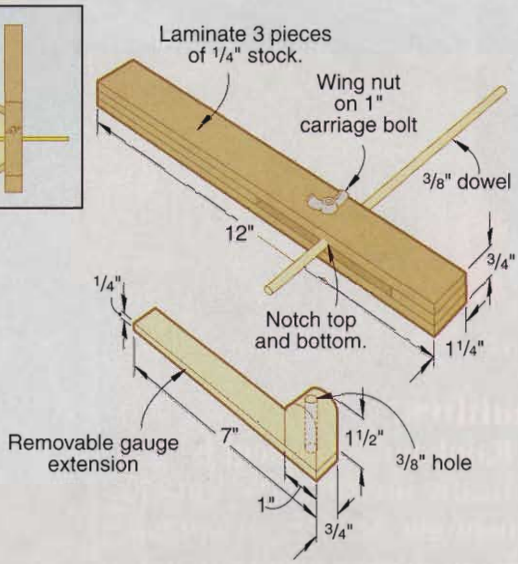
Make a gauge, save some bowls



Woodturners know the cardinal rule of bowl-turning: Don't make the inside bigger than the outside. This simple jig, shown *below*, gives you an easy way to check the inner depth and then compare it to the outer profile.

—Jack Turley, Chicago, Ill.

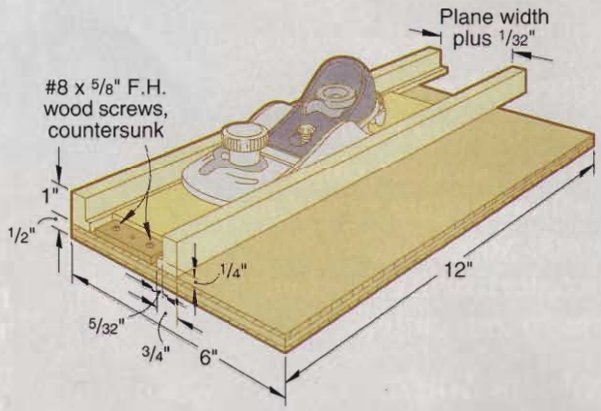




Turn your block plane into a mini jointer

I wanted to glue-up pieces of exotic and colorful wood from my scrap box, but most of them were too small to safely run through a jointer. So I made the jig shown *below*, sized so that my block plane just fits between the hard maple guide rails. I place the piece of scrap against the stop, take a few strokes with the plane, and make a nice, smooth surface suitable for gluing.

—John Wersosky, New Durham, N.H.

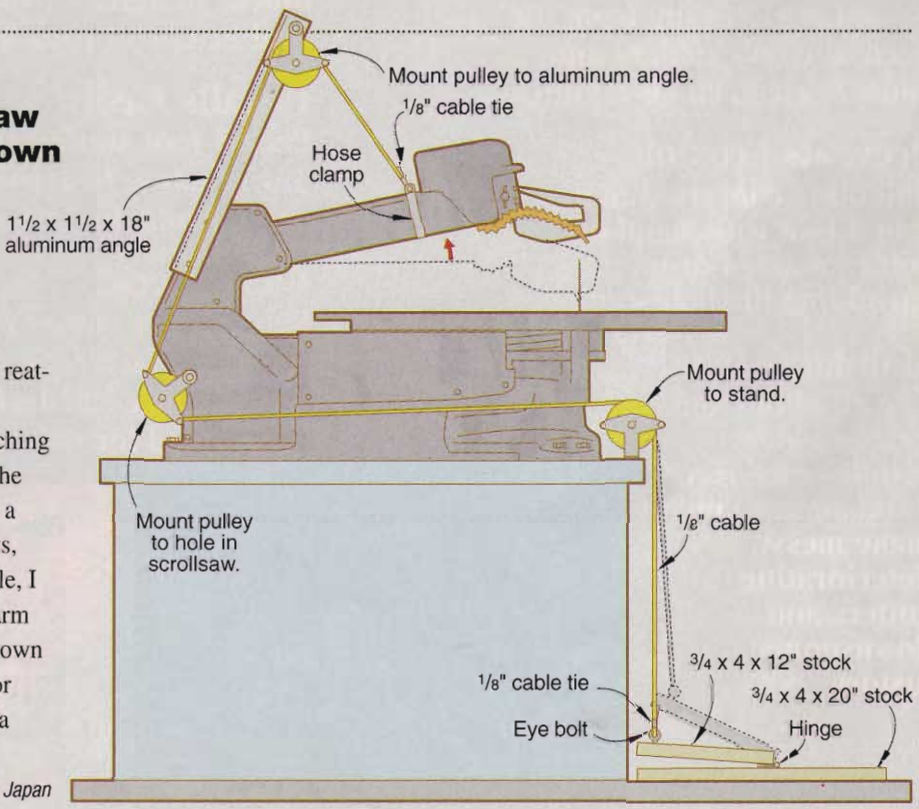


When changing scrollsaw blades, put your foot down

I'm hooked on scrollsawing, and now I've made my DeWalt 20" saw even more fun to use. I do a lot of detailed, inside cutting, which means frequently detaching the blade, threading it through a hole, and reattaching it.

It's not easy to do all that blade-switching with only one hand while holding up the saw arm with my other hand. So, with a scrap of aluminum angle, a few pulleys, some screws, and about 5' of steel cable, I customized the saw so I can hold the arm up by pressing on the foot pedal, as shown at *right*. This leaves both hands free for changing blades and has proven to be a huge time-saver.

—Steve Manzo, Okinawa, Japan


Mount pulley to aluminum angle.
1/8" cable tie
Hose clamp
1 1/2 x 1 1/2 x 18" aluminum angle
Mount pulley to stand.
Mount pulley to hole in scrollsaw.
1/8" cable
3/4 x 4 x 12" stock
1/8" cable tie
3/4 x 4 x 20" stock
Eye bolt
Hinge

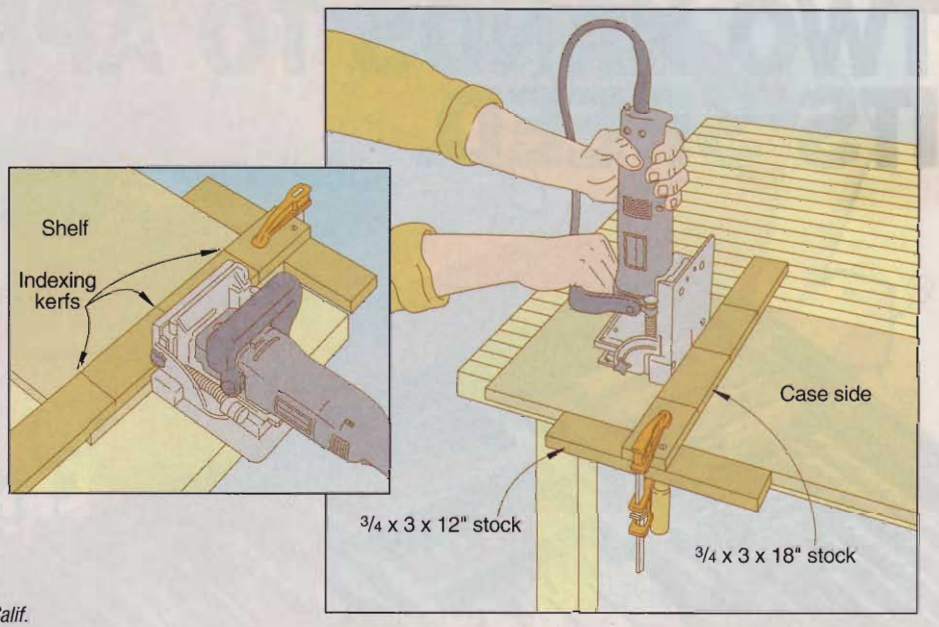
Enjoy this "T" with your biscuits

Building with a biscuit joiner is such a pleasure. To make it even more enjoyable, I fashioned a special T-square, shown at *right*, from scraps of ¾" medium-density fiberboard (MDF).

I use the jig when building bookcases or shelved cabinets. I mark the desired locations of biscuits on the long leg of the square, and cut a saw kerf at each mark. Those kerfs serve as registration lines for the joiner.

It's quick work to cut slots in the side of the carcase, then cut matching slots in the ends of the shelves. You just may want to make different T-squares for projects of different dimensions.

—Glenn Willis, Jr., Redondo Beach, Calif.



Continued on page 33

No Matter How You Cut It, These Tenryu Blades Are Winning Combos

Tenryu Gold Medal 10" x 40t and Rapid-Cut 10" x 50t blades give you splinter-free cuts in all woods—even chip-free cuts in melamine. Both feature extra hard carbide teeth that stay sharp longer, even when cutting abrasive materials.

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Rapid-Cut: "The smoothest cutting of all the ATB/R blades tested" —WOOD Magazine, February 2000

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Circle No. 78

Continued from page 31

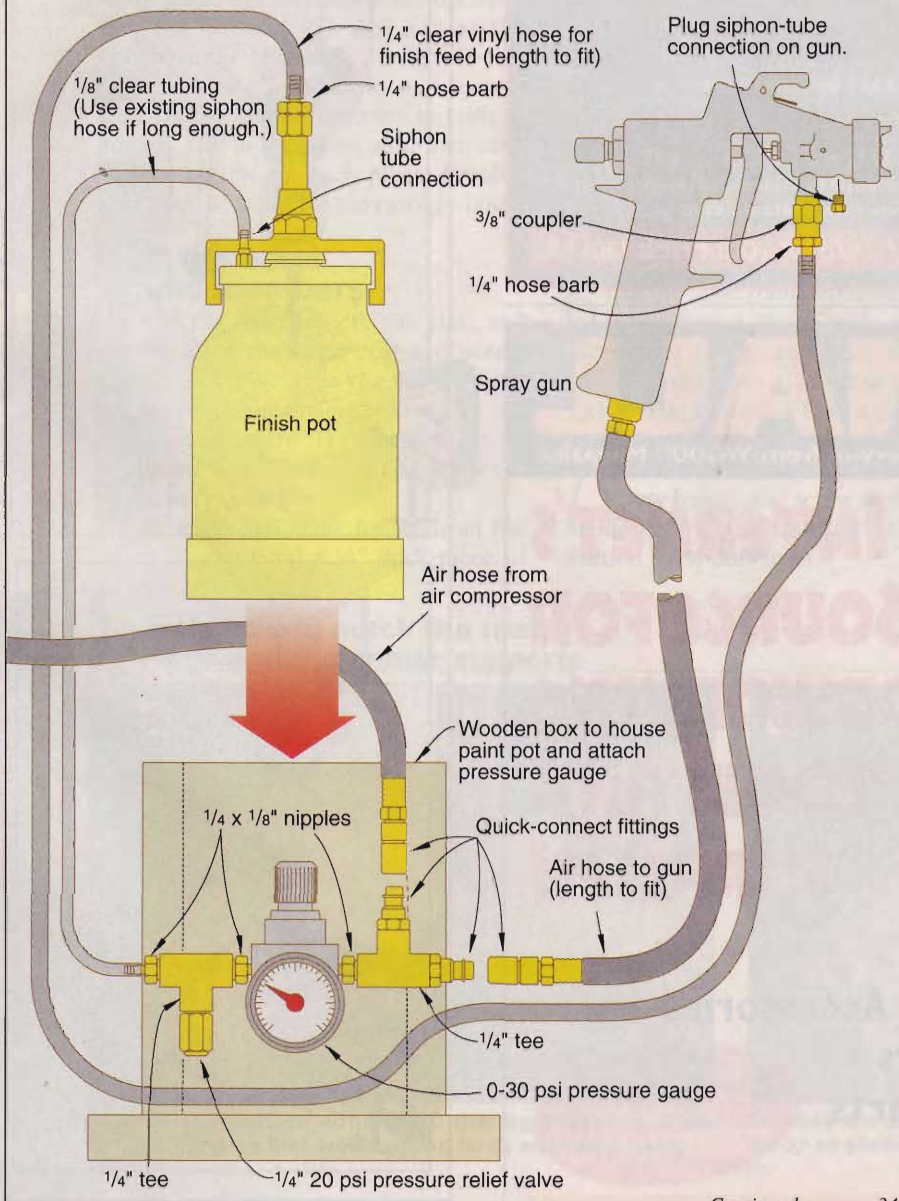
Automotive paint process inspires HVLP improvement

I love applying finish with my HVLP pressure-feeding sprayer, but I found it frustrating always having to keep the gun upright. And as the finish got lower in the pot, the less I could tip it and still apply an even coat. After studying the finish applicators at the automotive plant where I work, I went home and modified my sprayer.

I bought some ¼" plastic tubing, hose, fittings, and a regulator and valve, and assembled them as shown *below*. To keep everything together, I mounted them on the outside of a small wooden box that was large enough to hold my finish pot.

To use my modified sprayer, I fill the pot with finish and adjust the regulator to around 5 psi. Because the pot stays upright, and only the spray gun tips, I can now spray vertical and horizontal surfaces—even the undersides of projects—in one session.

—Robert Wilson, Lawrenceburg, Ky.


1/4" clear vinyl hose for finish feed (length to fit)
Plug siphon-tube connection on gun.
1/8" clear tubing (Use existing siphon hose if long enough.)
1/4" hose barb
Siphon tube connection
3/8" coupler
1/4" hose barb
Spray gun
Finish pot
Air hose from air compressor
Wooden box to house paint pot and attach pressure gauge
1/4 x 1/8" nipples
Quick-connect fittings
Air hose to gun (length to fit)
1/4" tee
0-30 psi pressure gauge
1/4" tee
1/4" 20 psi pressure relief valve

Continued on page 34

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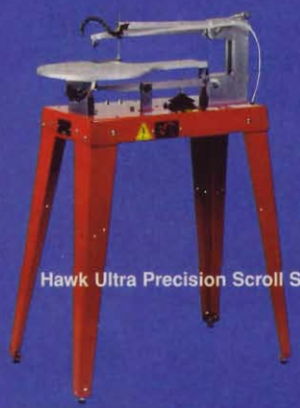

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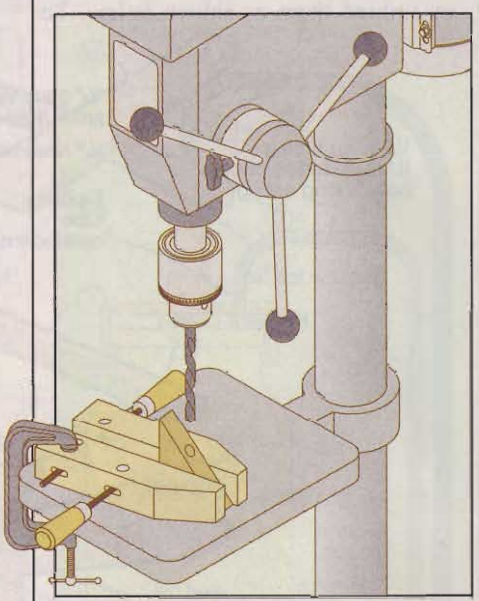
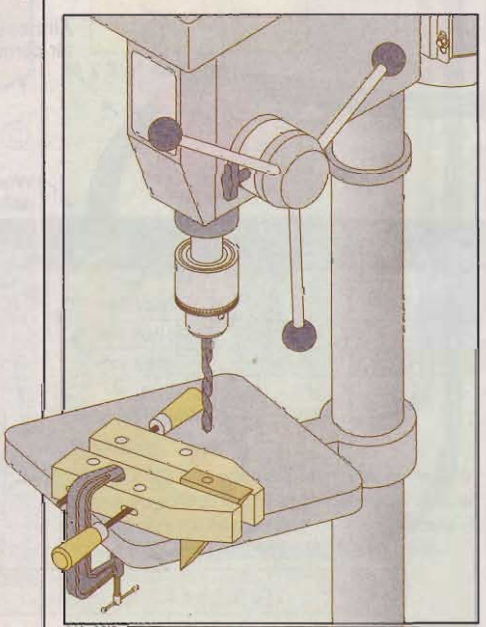
Continued from page 33

Hand screw holds while drill press makes holes

In my furniture-making business, I often need to drill holes in the edge of small, unusually shaped pieces. Rather than make a work-holding jig for each shape, I clamp the piece into a handscrew and drill the hole on my drill press as shown *below*. The clamp keeps my hands out of danger and secures the workpiece for a nice, clean hole.

—Bob Jay, Port Orchard, Wash.



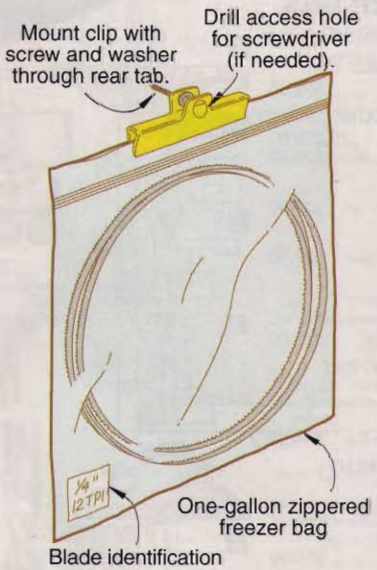


Bandsaw blade storage: Zip 'em up, clip 'em up

Instead of tying up my bandsaw blades with string or a twist-tie, I place each in a one-gallon zipper-type freezer bag. Squeezing most of the air out before sealing the bag reduces the likelihood of trapping moisture in the bag.

I then label each bag with the thickness and tooth-count, but you also could include such information as the proper tension setting for that blade. To keep my bandsaw blades handy, I mounted several of those potato-chip bag clips to the wall right next to my saw, and hang the blades as shown *below*.

—John Tappan, Chattanooga, Tenn.


Mount clip with screw and washer through rear tab.
Drill access hole for screwdriver (if needed).
1/4" 12 TPI
One-gallon zippered freezer bag
Blade identification

A few more tips from our woodworking pros

•Need round legs for a project but you don't have a lathe? See our router jig on *pages 54-55* for the perfect solution.

•Wiping on an oil finish can often be the simplest way to complete your project. To avoid the few pitfalls of such a finish, check out our batch of tips at the *bottom of pages 64-65*.

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insects can take their toll

Water, fungi, oxidation, enzyme stain, and decay all cause wood to deteriorate. Then there are insects, plenty of them.

Insects recycle dead, down, and wounded trees into fertile soil and plant nutrients. Unfortunately, these little recyclers don't observe "off limit" signs. They'll eat wood destined for your shop (or the wood already there) as well as what loggers leave behind. Here's a roundup of those that make their mark.

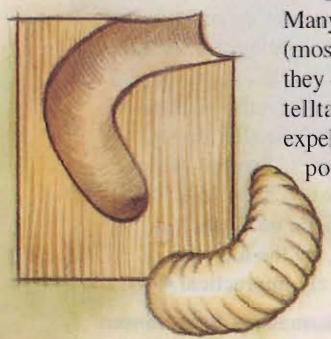
Some insects focus only on living trees and green logs

Insect species in this category actually number in the thousands. But woodworkers usually never see these culprits, only the results of their activity.

Fly larvae create distinctive marks

The dark, thin streaks of varying length running with the grain that you'll often spot on basswood, birch, cherry, maple, and willow boards were made by fly larvae. These pith flecks result from the burrowing of the larvae down through the cambium layer of the living tree toward the ground. The wound heals after the larvae pass, but the tissue turns dark. The pith flecks don't weaken the wood. It only looks bad.

Bark beetles engrave as they go



Many insects attack the inner bark of trees (mostly conifers) and freshly cut logs. As they excavate around the trunk, they leave a telltale trail. Visible entrance holes with expelled frass (fecal matter, bark, and wood powder) indicate their work. Because these beetles live on fresh logs and living trees, they perish with the later processing of the wood.

Horntails and others do boring work

Some insects bore into trees, logs, and freshly sawn lumber to simply feast. The most common are the pine sawyers and the horntails. The ⅜" to 1" grub holes they leave behind indicate their past presence. You'll find their tracks in hardwoods and softwoods, and in sapwood as well as heartwood. Kiln drying kills their larvae. But if their activity was extensive, the lumber is weakened and its appearance downgraded.

Termites and carpenter ants

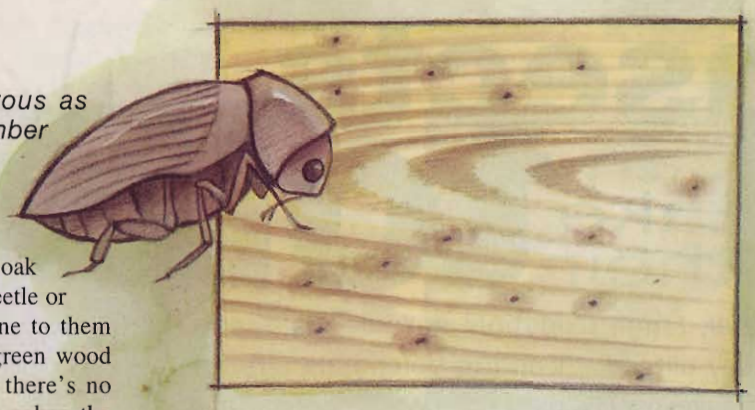
These tough guys like wood and damp feet

While common termites and carpenter ants—both social enough to live in colonies—can and will tear through your woodworking stock, it's unlikely. That's because they both prefer moisture. So unless you store wood where it's damp, or where termites can tunnel their way to it from moist ground, you're not likely to encounter these critters.

Continued

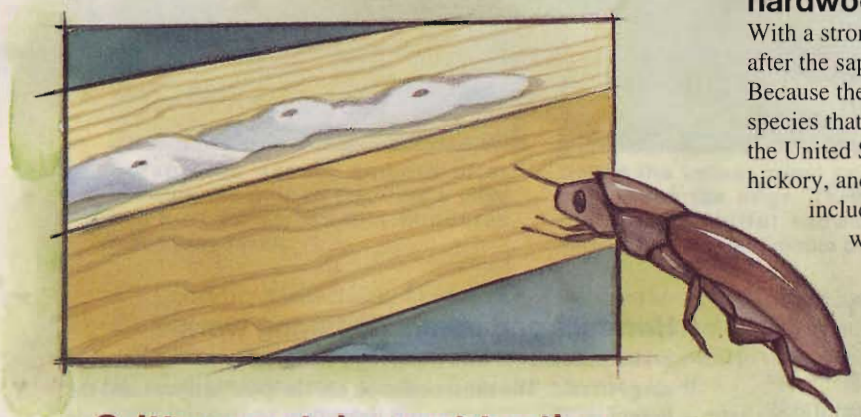
Other bugs eat seasoned and even kiln-dried wood

Beetles in this category prove numerous as well as aggressive. They're Enemy Number One for woodworkers.



Ambrosia beetles damage hardwoods and softwoods

The pin holes up to ⅛" in diameter often seen in oak and other woods are signs left by the ambrosia beetle or other anobiid beetles. No tree species is immune to them because they primarily attack the sapwood of green wood and that being air-dried. Once the wood dries there's no threat. The holes they've mined usually don't weaken the wood, yet a fungus they carry severely stains it. The holes and the frass coming from them give away their presence.



Powder-post beetles like hardwood sapwood best

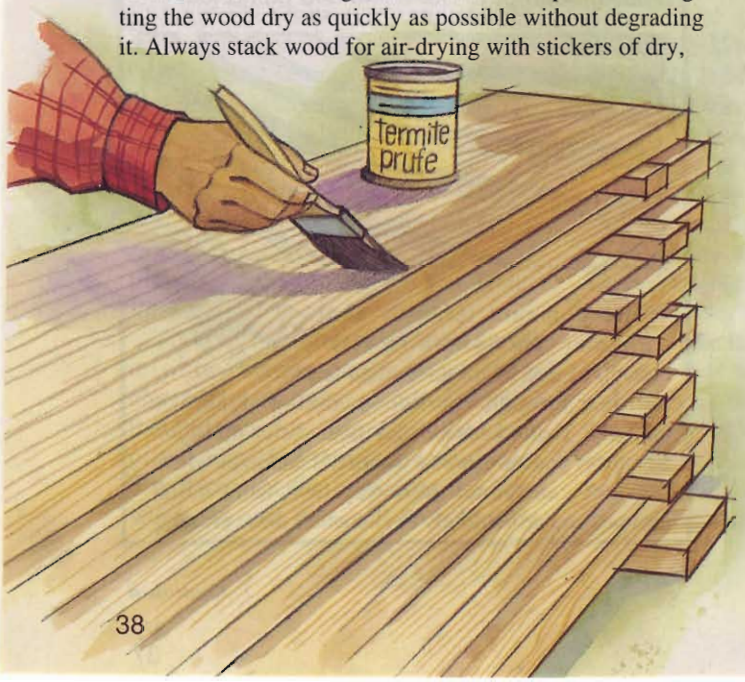
With a strong preference for hardwoods, powder-post beetles go after the sapwood of seasoned and even kiln-dried lumber. Because the adults deposit their eggs in the wood pores, only species that have sufficiently large pores get their attention. In the United States, you'll find powder-post beetle damage in ash, hickory, and oak, although other species are susceptible, too, including black walnut. When adults emerge from the wood, usually in spring and summer, they leave 1/32" to 1/16" diameter holes. Fine, powdery frass near the holes marks their ongoing action, which can eventually render stock useless.

Critter-containment tactics

The necessary measures to kill insects and control or contain insect infestation in wood vary with the type of insect.

For insects that only chew green wood, take away moisture

With insects that love green wood, the best protection is getting the wood dry as quickly as possible without degrading it. Always stack wood for air-drying with stickers of dry, uninfested wood. The stickers allow air to circulate between the boards and more quickly dry the exposed surfaces. It's also a good idea to remove all bark (wane) from board edges before seasoning or storing. And kiln-drying over 130° normally kills most insects that like their wood moist.



Insects living off dry hardwoods require special measures

Although the primary culprit in this category is the powder-post beetle, there are others. Prevention and eradication methods remain the same, however.

Because powder-post beetles invade only hardwood sapwood, buy boards with the smallest amount (or rip it off) if you plan to store the wood for any length of time in a place where the bugs may enter. That could be a shed or other building subject to the elements.

Pretreating wood surfaces with a borate compound—boron and oxygen—protects against beetle infestation. Mixed in a 10 percent solution with water, the borate should be sprayed or brushed directly on and into the holes of unfinished wood. In infested wood, the larvae and the adult beetles die after digesting the treated boards. (One product, Termite Prufe, you'll find at major hardware stores or call 805/565-1566.)

Other post-infestation treatments include fumigation, heating, and freezing (-40 F for days). But for the majority of home woodworkers, they're all relatively impractical.

Illustrations: **Brian Jensen**

plane terrific

After assembling this little gem, you may be tempted to place it in a display case. But go ahead and put it to work. This sturdy plane will do wonders in your shop.

First, let's fabricate the parts

1 Cut a maple blank to 1¾×2½×14" (enough material for two block planes, and long enough to run through a thickness planer). If you don't have 1¾"-thick maple (8/4 stock), laminate the blank from thinner pieces of maple. Prepare an identical sized scrap blank.

2 Plane both blanks to 1 1⁄16" thick, keeping all sides of each blank square to each other. Set aside the scrap blank for now.

3 Crosscut the maple blank to 6½" long, and adhere the Front Core Blank, Rear Core Blank, and Wedge Block full-size patterns found in the *WOOD PATTERNS*® insert to the top face with spray adhesive or rubber cement. Cut the core blanks (A and B), and the wedge block (C) to shape with a bandsaw, staying just outside the lines. Sand the parts to shape using a stationary sanding belt or disc set absolutely square to its table. On your tablesaw, trim the wedge block (C) to 1⅝" thick. Set it aside for now.

4 From ¼" padauk, cut two plane sides (D) to 2½×6½". Cut the side full-size pattern found in the *WOOD PATTERNS* insert along its bottom edge and adhere it to one of the side pieces, being careful to precisely align the bottom edge of the pattern with the bottom edge of the side piece.

Continued

Time to shape up the body

1 Using the Body Assembly drawing as a guide, position parts A, B, and D on a flat surface such as the top of your tablesaw. Place waxed paper underneath the parts.

2 Glue and clamp the front and rear core blanks (A and B) to the side (D) with the applied pattern. Be careful to align the part bottoms, and leave a 1/16" space between the front and rear core blanks. After the glue dries, glue and clamp the other side to the core blanks.

3 Cut the scrap blank to 5" long and insert this piece (unglued) into the open throat of the plane assembly. It should fit snugly, but loosely enough so you can remove it later. The scrap serves as a chip breaker for the cutting and drilling that follows.

4 Next, cut the assembly to length, using the Side full-size pattern as a guide. Cut the curved portions with a bandsaw. Sand the edges, ends, and bottom with 100-grit abrasive. Take care now to keep the bottom flat and square to the sides.

A few final touches and you'll be planing

1 Place a 1/4" bit in your drill press, and set its table square to the bit. Drill the 1/4" hole at the location marked on the Side full-size pattern through the assembly. (See photo at *right*.) Drill the 17/64" holes, where shown on the pattern, through the assembly. Remove the pattern and scrap blank.

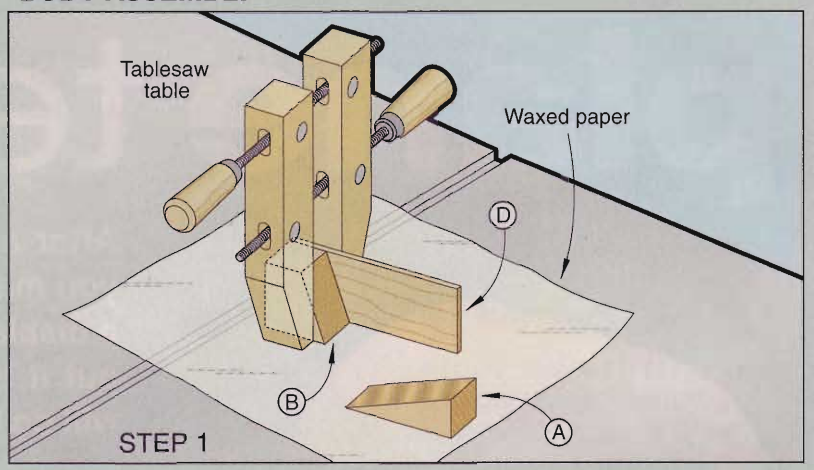
2 Cut five pieces of 1/4"-diameter brass rod to 2 3/16" long. Near the ends of one of the brass rods, reduce the diameter just slightly (by about 1/64") with light sanding. Insert this rod into the 1/4" hole, withdraw it about 1/2", apply epoxy to both rod ends, and reinsert. Apply epoxy to the remaining holes and insert the other brass rods. The rods should protrude evenly on both sides of the plane. After the epoxy cures, use a stationary sander to make flush the ends of the brass rods with the plane sides.

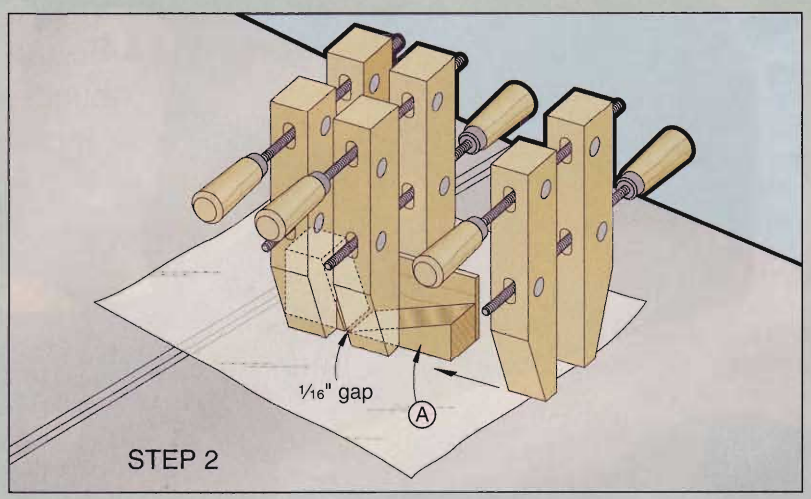
3 Set up a 3/4" core-box bit in a router table, as shown in the Router-Table Setup For Finger Recess drawing. Place the bottom of the plane against the router fence with either end against the right-side stopblock. Lower the plane onto the spinning bit, holding it firmly against the fence and table, and slide the plane to the left until it contacts the other stopblock. Lift the plane straight up and off the bit. Rotate the plane end for end and repeat this routing procedure to cut a finger recess in the other side of the plane.

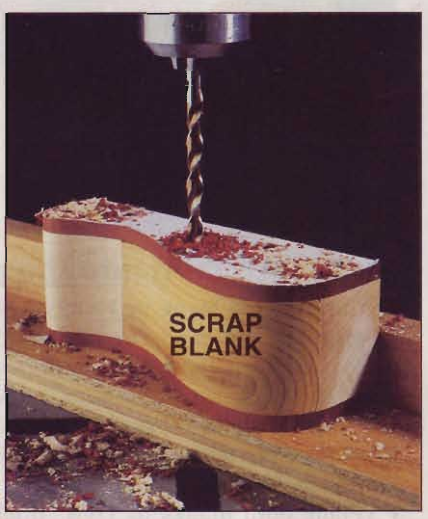
4 Round the edges of the wedge block (C) and the plane sides (D) with a 1/8" round-over bit, where indicated on the Exploded View drawing. Sand smooth the areas you just routed in the last two steps.

5 Final-sand the entire plane with a succession of 150- and 220-grit abrasives. We applied two coats of Olympic Interior Antique Oil Finish.

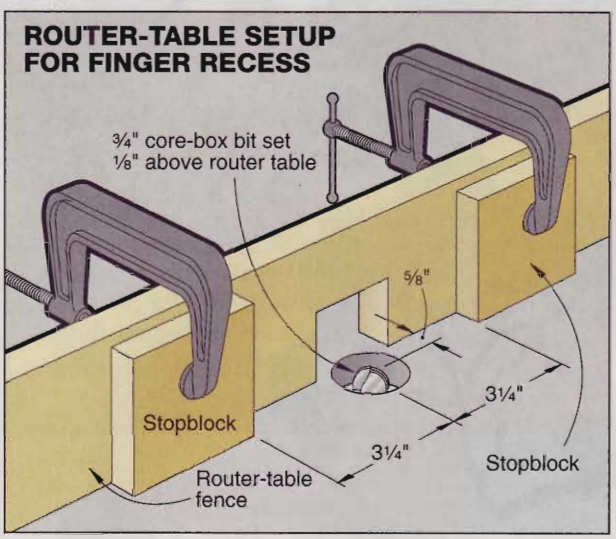
BODY ASSEMBLY

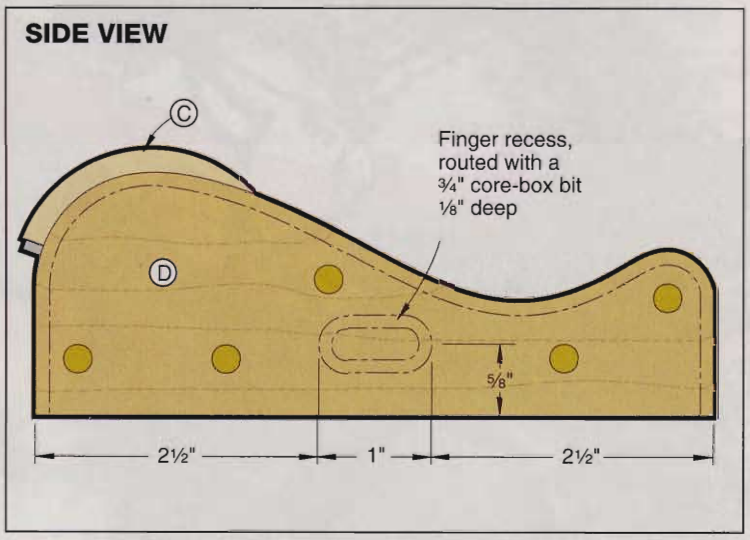




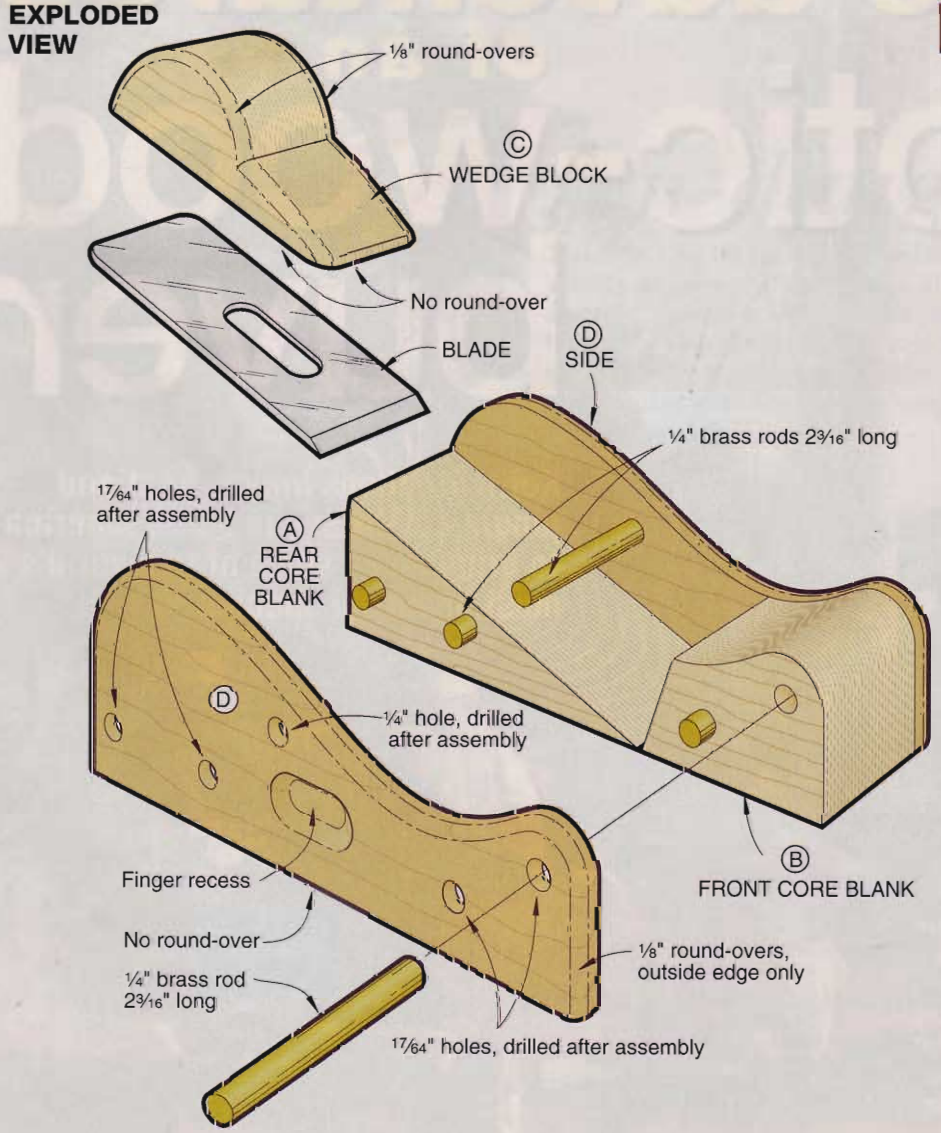


The scrap blank prevents the side stock from tearing out when you drill the 1/4" hole for the brass rod.





EXPLODED VIEW



BILL OF MATERIALS

Part	finished size T	W	L	Matl.	Qty.
A* rear core blank	1 11⁄16"	1½"	3⅞"	M	1
B* front core blank	1 11⁄16"	1 7⁄16"	2 1⁄16"	M	1
C* wedge block	1⅝"	1 3⁄16"	3 15⁄16"	M	1
D sides	¼"	2⅛"	6"	P	2

*Cut parts marked with an * oversized. Trim to finished-size according to the instructions.

Materials Key: M–maple, P–padauk.

Supplies: ¼" brass rod 12" long, epoxy, oil finish.

Buying Guide:

Plane blade. Hock 1⅝x4½" blade, item 04B35, $26.99 plus shipping. Woodcraft, 560 Airport Industrial Park, P.O. Box 1686. Parkersburg, WV 26102-1686. Or call 800/225-1153 to order.

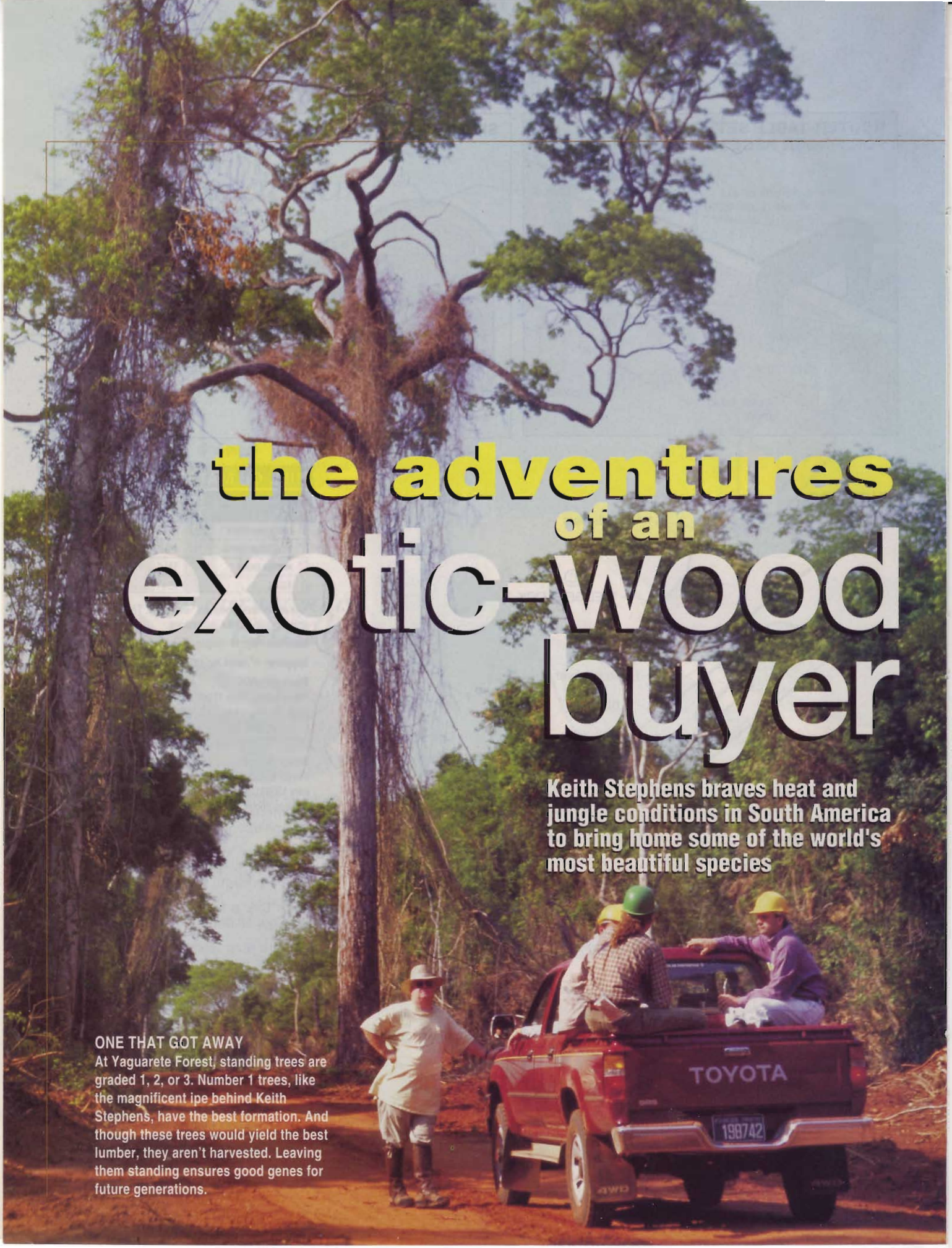
Wood and brass rod. Enough ¼" padauk, 1 11⁄16" maple, ¼" brass rod, and scrap to make one plane, item 130981, $9.99 plus shipping, from Woodcraft at address above.

See the *WOOD PATTERNS*® insert for full-size patterns.

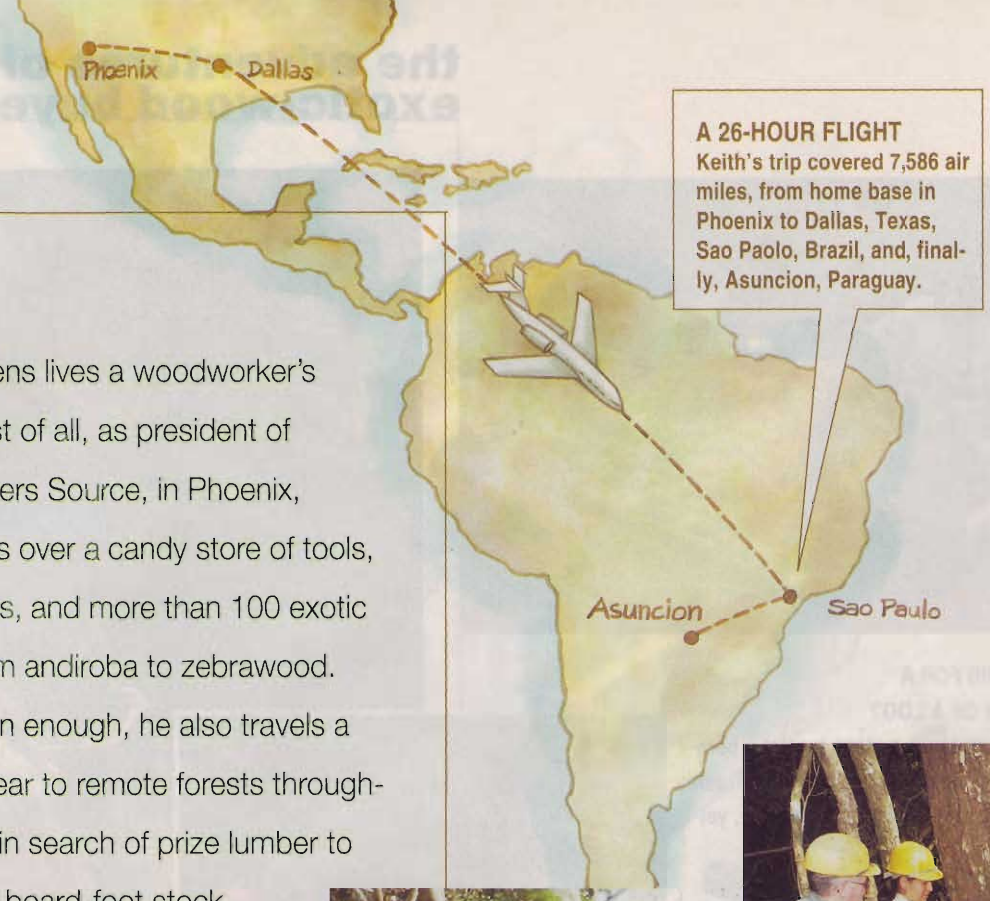
Written by **Bill Krier** with **James Downing**
Project Design: **Paul Hamler**
Photographs: **Baldwin Photography**
Illustrations: **Kim Downing; Lorna Johnson**

the adventures of an exotic-wood buyer

Keith Stephens braves heat and jungle conditions in South America to bring home some of the world's most beautiful species



ONE THAT GOT AWAY
At Yaguarete Forest, standing trees are graded 1, 2, or 3. Number 1 trees, like the magnificent ipe behind Keith Stephens, have the best formation. And though these trees would yield the best lumber, they aren't harvested. Leaving them standing ensures good genes for future generations.



A 26-HOUR FLIGHT
Keith's trip covered 7,586 air miles, from home base in Phoenix to Dallas, Texas, Sao Paolo, Brazil, and, finally, Asuncion, Paraguay.

Keith Stephens lives a woodworker's dream. First of all, as president of Woodworkers Source, in Phoenix, Arizona, he presides over a candy store of tools, accessories, finishes, and more than 100 exotic woods, ranging from andiroba to zebrawood.

And if that isn't fun enough, he also travels a couple of times a year to remote forests throughout South America in search of prize lumber to add to his 200,000-board-foot stock.

When Keith told us he was planning a trip to the Yaguarete Forest in eastern Paraguay last fall, we were intrigued at the prospect of learning more about the exotic wood business. And to give you (and us) a flavor of what things look like down in tropical Paraguay, we dispatched photographer Marcial Barni to document Keith's trek. As you'll see, getting exotic woods from South American forests to your workshop is a complex undertaking that requires a great deal of dedication and stamina.

It's a long way from day care to Paraguay

Until 1984, Keith headed a chain of child day-care centers in the Southwest. But when Gerber bought out his operation, he capitalized on a long-standing interest in woodworking by developing a hardwood lumber and woodworking supply business. It didn't take Keith long to fall in love with exotic wood species (those harvested outside the United States). And today, Woodworkers Source features the broadest selection of exotics in the United States. Keith stresses, though, that selling these woods from far-away places is "fun but not very profitable." He told us that in 1999, exotics accounted for only about 9% of sales.

Continued

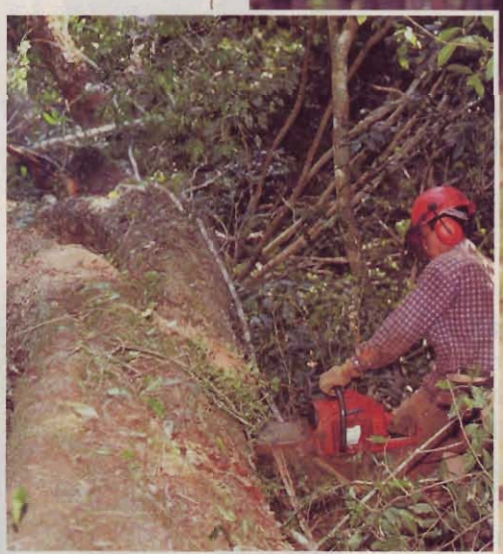
YES, I'LL TAKE THAT ONE!
Above right: **Each tree is numbered, then entered into a "log" book, along with its dimensions and the number of cubic meters of lumber it will yield.**

NOT EXACTLY INTERSTATE 80
Above: **Tractors skid out logs along small roads cut into the jungle. After an area is logged, these roads grow over in six months to a year.**

the adventures of an exotic-wood buyer

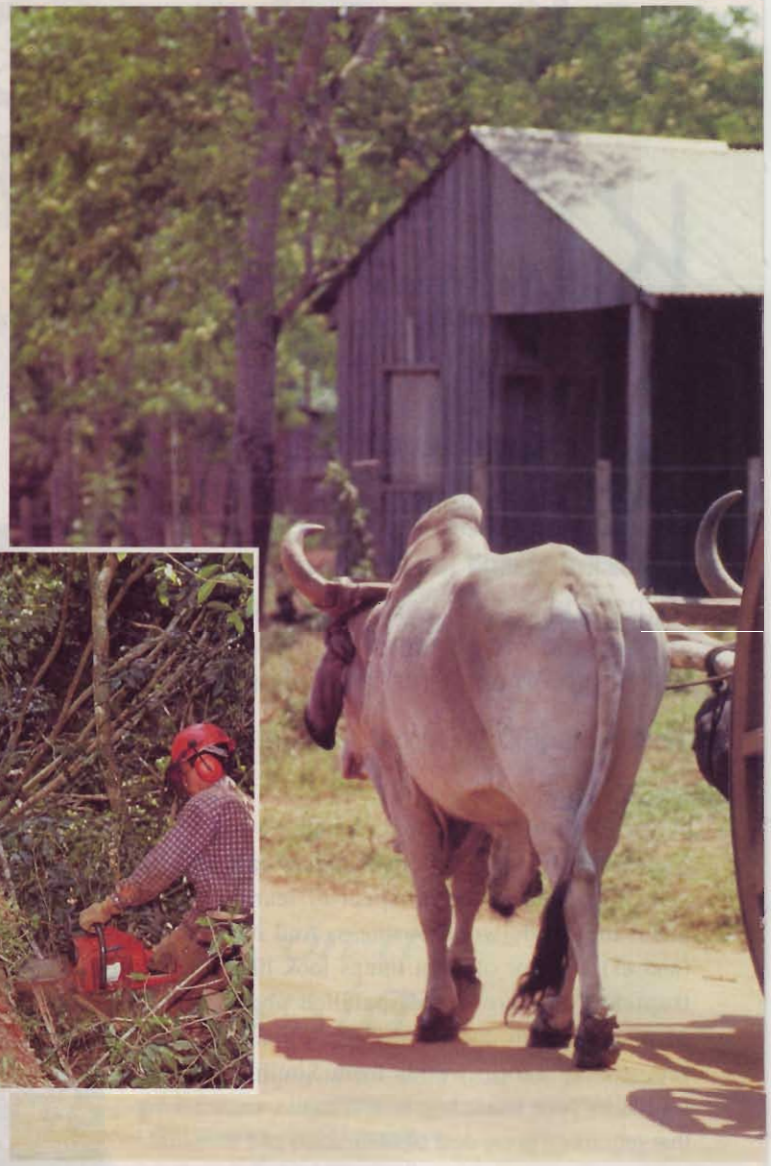
HOW'S THIS FOR A WHOPPER OF A LOG?

Above: Keith takes a close look at a peroba rosa log, which is rose red when freshly cut, sometimes streaked with purple, yellow, or orange.



ALL IN A DAY'S WORK

Right: After a tree is felled, workers remove its limbs and clear vines and debris. The trunk of this lapacho measured 18 feet long.



"Hey Keith, I've always wondered..."

When you deal in unfamiliar woods and take mysterious journeys, too, you attract all kinds of attention from other woodworkers. Keith tells us that people seem fascinated by exotic woods, and they're forever asking him about his travels. Here are some of the most frequently asked questions, along with Keith's answers:

Q. How much do you pay for a board foot of lumber?

Keith: I have paid anywhere from $.50 to $20.00 for kiln-dried, rough-surfaced, usually 4/4 stock. (I once paid $50.00 for some pink ivory, one of the rarest woods in the world.) Freight, unloading, and surfacing can add up to another dollar per board foot. We sell exotics for double our cost, with 20% discounts for 20 or more board feet.

HOT WHEELS
Local loggers have hauled with oxcarts like this one, *left*, for many centuries. Keith suspects that these logs will serve as firewood.

WOODWORKING, PARAGUAYAN-STYLE
The back-to-basics open-air workshop, *below*, features a bandsaw, the wheels of which are wooden discs, and a jury-rigged lathe with an adjustable tailstock that accommodates work up to about 10 feet.

Q. How much wood do you buy at a time?
Keith: Typically a container load at a time, which figures out to about 8,000 board feet.

Q. How do you get the wood back to the States?
Keith: The containers are trucked to the nearest seaport, then loaded on ships traveling up the east or west coasts of South and North America. It costs about $2,500 to ship a container from Argentina or Chili to the U.S., plus $1,000 per container for handling fees. Inland freight is additional.

Q. How long does it take a container to get to Phoenix?
Keith: I've waited as long as 2 years for some of it. At best, it takes about 120 days.

Continued

the adventures of an exotic-wood buyer

I'M SURE GLAD WE TRADED IN THE OXEN FOR THIS FORKLIFT

Above: Once logs reach the main road, a forklift scoops them up and loads them on a flatbed truck.

I CAN'T BELIEVE I BOUGHT THE WHOLE LOAD

Above bottom: Here, Keith takes a hands-on approach to inspecting a load of exotic-wood timber that has just been harvested. "At these prices, you want to make sure you're getting the best possible wood," Keith says.

Q. Why use exotic woods?

Keith: Because of their color and figure, they add flair and excitement to projects when used with more common woods.

Q. Can the vivid colors of exotic woods be maintained?

Keith: In a word, "No." But you can lessen the damage caused by light rays by using exterior finishes with UV blockers.

Q. How many hardwood species are there?

Keith: About 10,000. Of these, 3,000-4,000 provide usable lumber. And about 300 different hardwoods are in common use somewhere in the world.

Q. Why are exotic woods so expensive?

Keith: Several reasons. For example, they cost more to bring to market, they're scarce, some governments control pricing, and there's a demand for premium stock.

Q. Doesn't using exotic woods contribute to rainforest destruction?

Keith: That's a complicated question, but if the lumber is harvested using sound forestry practices, there is negligible effect on the rainforest.

4 of Keith's Favorite Exotic Woods

(All available at $9.99/board foot)

Cancharana

Deep red to maroon with purplish markings. Lightweight, very easy to work, finishes smoothly, very stable.

Goncalo Alves

Light golden brown to reddish brown with dark streaks producing a beautiful striped or mottled figure. Hard and heavy. Fine texture takes a glass-like finish.

Guatamba

Also known as ivorywood. Cream to lemon yellow. Generally straight grain with fine, uniform texture. An excellent turning wood.

Ipe

Olive brown to blackish with exposure to sun, often with lighter or darker striping. Usually straight grained. Great strength and durability. Excellent for decking and other types of outdoor projects.

Left: Ipe logs move through the Yaguarete sawmill. An operator in the booth controls the head rig.

Below: Keith checks the tally on a bundle of ipe lumber that's kiln-dried and ready for shipping.

Do you want to talk exotic woods with Keith?

If this article has gotten you excited about trying some exotic woods in your projects, here's how you can get in touch with Keith. If you live in or near Phoenix, first call, then drop by 5402 South 40th Street, Phoenix, Arizona 85040. Or call him at 800/423-2450. He's got a website, too: www.woodworkerssource.com

Two excellent sources of information about the characteristics of exotic-wood species

Woods of the World CD Rom
For ordering information, contact Woodworkers Source, or key in www.forestworld.com

World Woods In Color
by William A. Lincoln. ISBN: 0941936201
Available through Woodworkers Source or at bookstores.

Written by **Larry Clayton and Jim Hufnagal with Keith Stephens**
Photographs: **Marcial Barni**

kitchen work center

Equally at home in a compact kitchen or as an auxiliary work center in a larger one, this butcher block will do its job beautifully wherever you place it. And because we constructed it with 1¾"-thick maple and used spline-joint construction, it will serve you well for years.

Start with two edge-joined laminations

1 From 1¾"-thick maple (commonly called 8/4 stock), cut the lamination strips (A, B, C) to the sizes listed in the Bill of Materials and as shown on the Laminations drawing.

2 Position the strips for Panels 1 and 2 in the configuration shown on the Laminations drawing. Number the pieces to keep them in the correct order when edge-joining them.

3 Edge-join the pieces to form the two panels. Use a damp cloth to remove the excess glue. (To keep the laminations manageable, we glued and clamped just half the pieces of each panel to start. Then, we glued the two halves together to form each panel.) Leave each panel clamped up overnight before machining.

4 Scrape the excess glue off both surfaces of each panel, and sand smooth and flat. Sand carefully to avoid creating high or low spots. You'll need a pair of flat laminations for a gap-free butcher-block top. Mark the panels 1 and 2 for ease in referring to the drawings.

5 Crosscut the two panels into the lengths dimensioned on the Laminations drawing. You'll need three aprons at 9" long each, one apron 5⁷⁄₁₆" long, and one piece 3⁷⁄₁₆" long for the drawer front. (We used a cutoff sled, like that shown in the April 1999 issue, page 16, to reduce chip-out.)

6 Cut ¼" grooves ⅜" deep, centered along each face and end of each 2½" strip (12 total), where dimensioned on the Assembling the Top drawing. Note that for the end grain to face up, you'll need to cut these grooves in the face grain.

7 Cut the same-sized grooves on the mating surface of each of the three 9" aprons and the 5⁷⁄₁₆" apron, where dimensioned on the drawing.

8 Cut 16 ¼×1¹⁄₁₆×19¾" splines (we used masonite).

Assemble the laminated maple top

1 Position the 2½"-wide strips in the configuration shown on the Assembling the Top drawing. Take your time, as the pattern is crucial to the good looks of the top. With the correct layout determined, glue, spline, and clamp the pieces back together, as shown in *Photo A*. Use a framing square to keep the ends perfectly flush; there's no extra to trim-off later. Wipe off the excess glue without forcing it into the end grain. Also, remove any glue from the groove that wraps around the lamination.

2 Dry-clamp the aprons to the center lamination to check the fit. Cut the corner pieces (D) to size.

3 Glue, spline, and clamp the aprons to the top center lamination, as shown in *Photo B*. Be careful to join the aprons so the corners are just touching at the inside corners for a tight fit of the corner pieces (D).

Continued

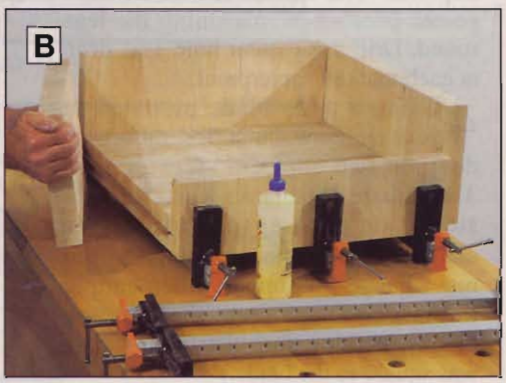
how to feed and care for BUTCHER-BLOCK PROJECTS

You can apply the finish we used, or for a more traditional sealing of the unfinished butcher block, liberally apply several coats of warmed mineral oil. Allow each coat to soak in for about five minutes and wipe off the excess. Repeat the process until the project will not absorb any more finish. After that, a reoiling every month or so is necessary to keep the surfaces sealed.

It's best to do cleanup with a damp cloth and warm water immediately after use.

To replenish a board with lots of cut marks, sand the surface smooth and re-oil as indicated above.

Spread an even coat of glue on all mating surfaces, then glue and clamp the top strips together, keeping the ends flush.



Using splines and glue, clamp the aprons to the top center lamination.

Add a drawer to store your cutlery

1 Cut the drawer front and back (E), sides (F), and bottom (G) to the sizes listed in the Bill of Materials and shown on the Drawer drawing. You'll use the 3 7/16"-wide piece cut earlier from Panel 2 for the drawer front.

2 Using the drawing for reference, cut a 1" groove 3/8" deep along the outside length of the sides (F). Then, cut a 3/4" rabbet 3/8" deep across the inside front and back ends of each drawer side.

3 Dry-clamp the drawer together, check for square, and drill the countersunk mounting holes. Don't forget to mark and drill the pair of mounting holes on the inside face of the drawer front (E) for attaching the drawer front lamination later. Remove the clamps, glue the mating edges, then glue and screw the drawer back together, checking for square.

4 Cut the drawer guides (H) to size. They should slide easily in the grooves in the drawer sides without slop.

Laminating the leg blanks

1 Cut eight pieces of maple to 1 3/4×3 1/2×32" for the legs (I). Glue, face-to-face, two pieces to form the blanks for each of the four legs.

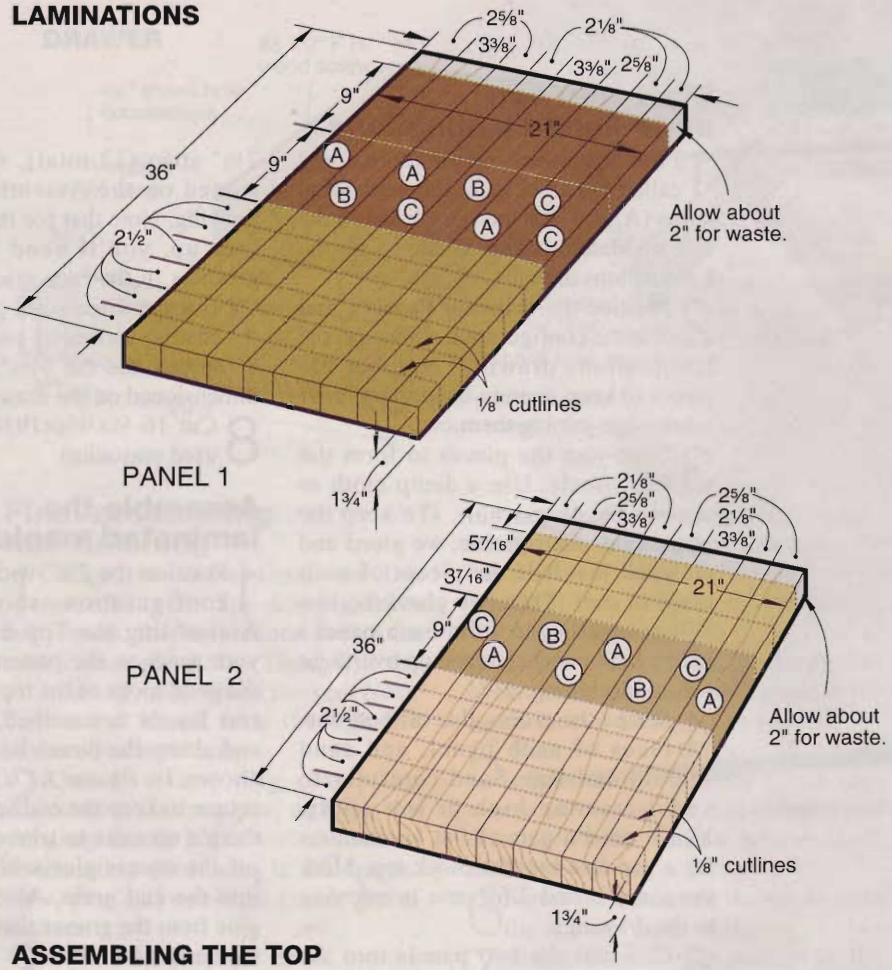
2 Joint one laminated edge flush on each leg blank, and trim the opposite edge for a 3 3/8" finished width. Then, joint or plane equal amounts of the face-grain portion of each blank to keep the joint line centered on the blank. Next, crosscut the ends of each blank for a 31 3/8" finished length.

3 Carefully draw diagonals on the ends of each leg to locate the centerpoints. You'll need accurate centerpoints later when machining the legs round. Drill a 7/64" pilot hole 1 1/4" deep at each marked centerpoint.

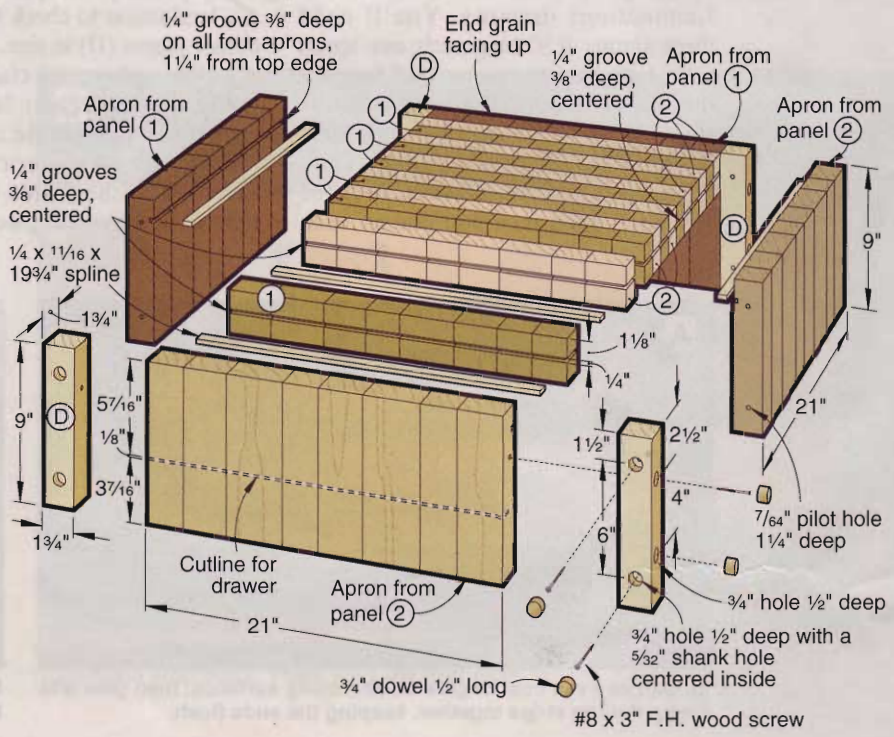
4 Using a dado blade mounted to your tablesaw, cut a 6 3/8" rabbet 1/2" deep on two adjacent sides of each 3 3/8"-square leg blank, where dimensioned on the Legs drawing. (We attached a long piece of stock to our miter gauge for support when cutting the large rabbets from the long leg blanks, making sure the miter gauge was square to the blade.)

Continued

LAMINATIONS



ASSEMBLING THE TOP



BILL OF MATERIALS

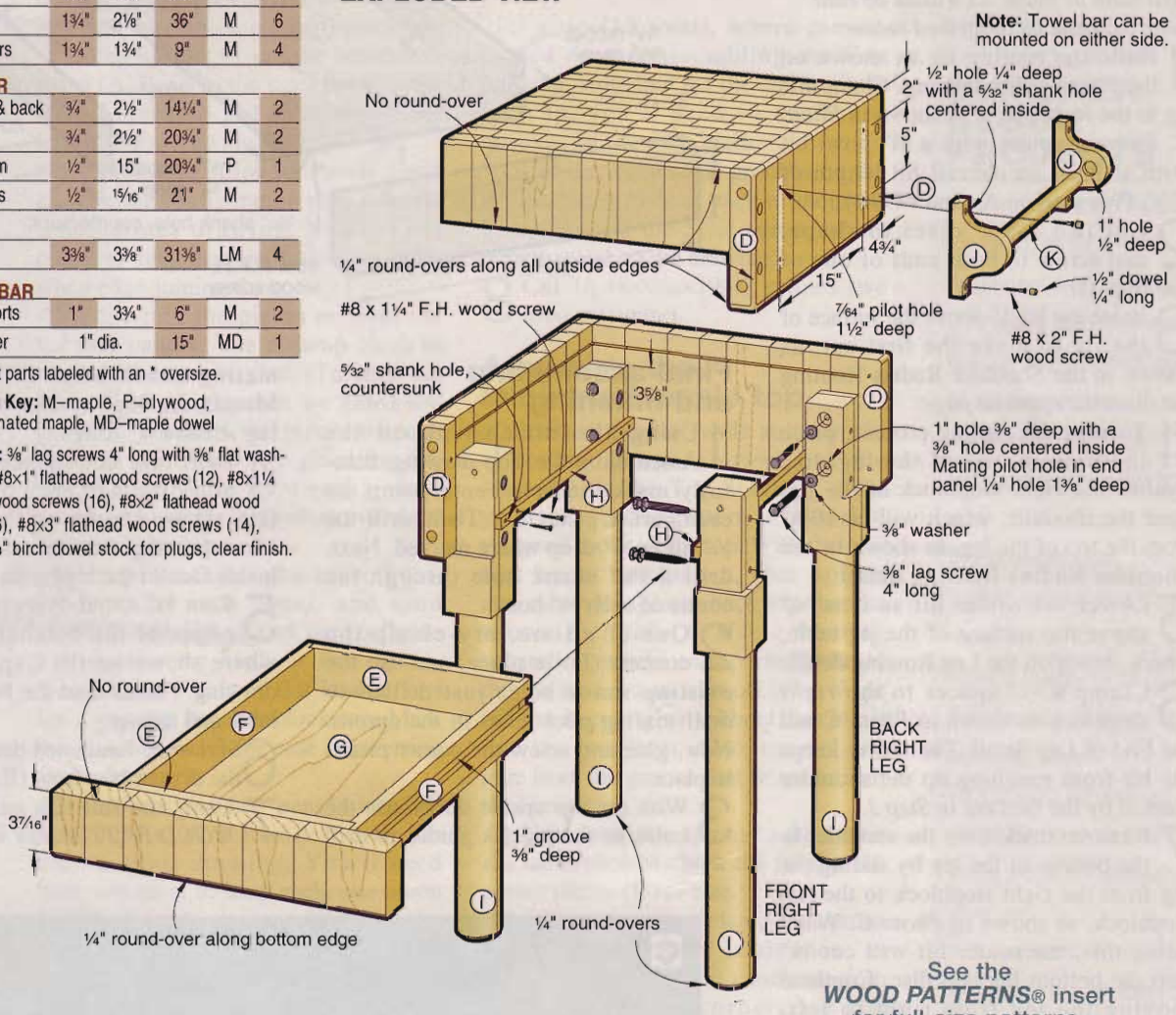
Part	finished size T	W	L	Matl.	Qty.
TOP					
A* strips	1¾"	2⅝"	36"	M	6
B* strips	1¾"	3⅜"	36"	M	4
C* strips	1¾"	2⅛"	36"	M	6
D corners	1¾"	1¾"	9"	M	4
DRAWER					
E front & back	¾"	2½"	14¼"	M	2
F sides	¾"	2½"	20¾"	M	2
G bottom	½"	15"	20¾"	P	1
H guides	½"	15/16"	21"	M	2
LEGS					
I* legs	3⅜"	3⅜"	31⅜"	LM	4
TOWEL BAR					
J supports	1"	3¾"	6"	M	2
K hanger	1" dia.		15"	MD	1

Note: Cut parts labeled with an * oversize.

Materials Key: M–maple, P–plywood, LM–laminated maple, MD–maple dowel

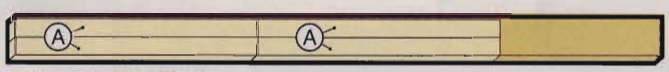
Supplies: ⅜" lag screws 4" long with ⅜" flat washers (14), #8×1" flathead wood screws (12), #8×1¼ flathead wood screws (16), #8×2" flathead wood screws (6), #8×3" flathead wood screws (14), ½" and ¾" birch dowel stock for plugs, clear finish.

EXPLODED VIEW

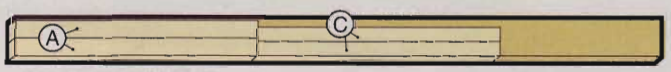

Note: Towel bar can be mounted on either side.
No round-over
½" hole ¼" deep with a 5/32" shank hole centered inside
2"
5"
1" hole ½" deep
½" dowel ¼" long
#8 x 2" F.H. wood screw
¼" round-overs along all outside edges
4¾"
15"
7/64" pilot hole 1½" deep
#8 x 1¼" F.H. wood screw
5/32" shank hole, countersunk
3⅝"
1" hole ⅜" deep with a ⅜" hole centered inside
Mating pilot hole in end panel ¼" hole 1⅜" deep
⅜" washer
⅜" lag screw 4" long
BACK RIGHT LEG
No round-over
3 7/16"
1" groove ⅜" deep
¼" round-over along bottom edge
¼" round-overs
FRONT RIGHT LEG

See the *WOOD PATTERNS*® insert for full-size patterns.

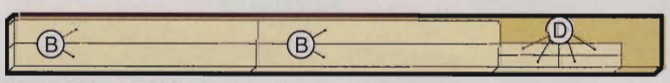
CUTTING DIAGRAM



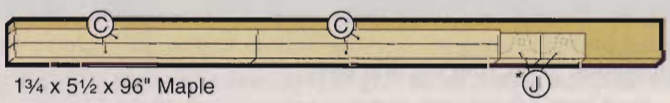
1¾ x 5½ x 96" Maple



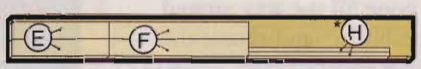
1¾ x 5½ x 96" Maple



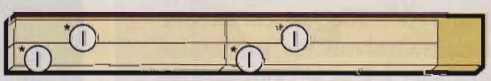
1¾ x 7¼ x 96" Maple



1¾ x 5½ x 96" Maple



¾ x 5½ x 60" Maple



1¾ x 7¼ x 72" Maple (2 needed)

½ x 24 x 24" plywood

*Plane or resaw to thickness listed in the Bill of Materials.

Machining the four legs to shape

Note: *To shape the legs, you can either turn them to shape on a lathe or rout them to shape as described below.*

1 Build the routing jig as shown on the Routing Jig drawing. Clamp the jig to the router table as shown in *Photo C*. Fit your router with a ¾" bowl bit with at least an overall bit length of 2⅝". (We used an Amana #45984.)

2 Cut two ¾×5" discs to shape, and screw to both ends of one of the legs (I).

3 Raise the bit 1" above the surface of the jig to make the first cut, as shown in the Shoulder Radius Routing detail on the *opposite page*.

4 To start the routing process, place the bottom end of the leg/disc against the *right* stopblock of the jig. Rout the shoulder, which will be 10⅜" from the top of the leg, as shown in the Shoulder Radius Routing detail.

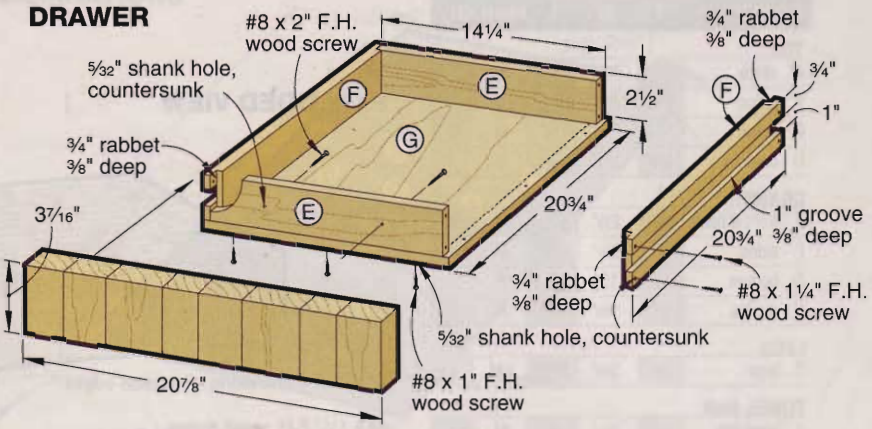
5 Lower the router bit so it is ¾" above the surface of the jig table, where shown on the Leg Routing detail.

6 Clamp a ¼" spacer to the *right* stopblock as shown in *Photo C* and the End of Leg detail. The spacer keeps the bit from roughing up the shoulder formed by the first cut in *Step 3*.

7 Remove stock from the shoulder to the bottom of the leg by sliding the leg from the right stopblock to the left stopblock, as shown in *Photo C*. When doing this, the router bit will cut ⅜" into the bottom leg end disc. Continue moving the leg from right to left, removing a small amount of stock with each pass. Rotate the top of the leg toward you for each successive pass. After you have gone all the way around the leg, raise the bit ¼" and repeat the process for another series of cuts.

8 Raise the bit to its final cutting depth of 1 1/16". The last cut should be very shallow (about 1/16") to make the 2⅞"-diameter leg as smooth as possible. Repeat the process for all four legs. Finish-sand all four legs smooth.

9 Move to your drill press, and drill the countersunk bolt holes in the top, flat surfaces of the legs. Note that the legs are mirrored right and left and that there are no lower holes in the front legs.



Final assembling and finishing

1 Using the dimensions on the Assembling the Top drawing, carefully mark the hole centerpoints on each corner piece (D). Then, drill the ¾" holes ½" deep where marked. Next, drill a 5/32" shank hole through the center of each ¾" hole.

2 One at a time, dry-clamp the corners (D) in place, and use the existing shank holes just drilled to drill mating pilot holes in the aprons. Now, glue and screw the corner pieces in place.

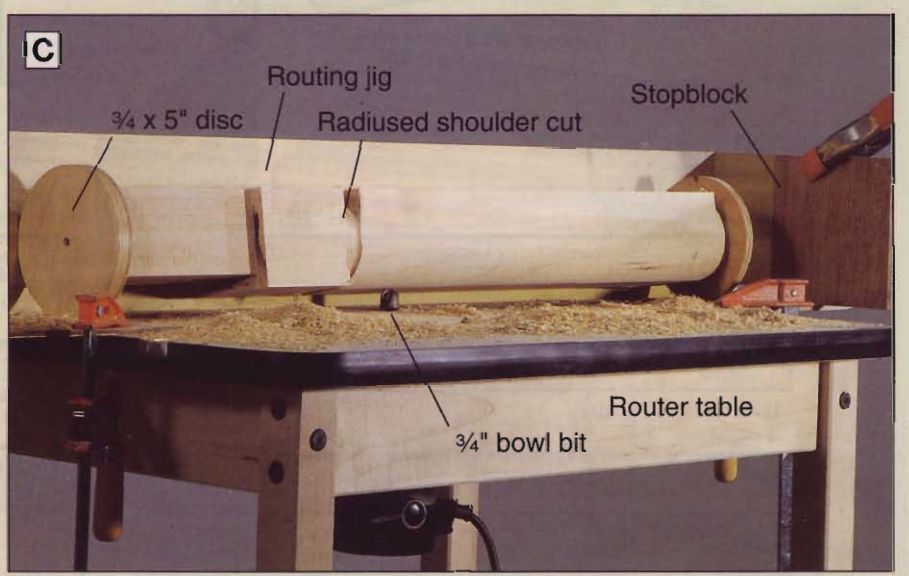
3 With the top upside down, use the holes in the legs as guides to drill mating shank holes in the aprons. Mount the legs to the top with ⅜" lag screws 4" long.

4 Drill four countersunk mounting holes through each drawer guide (H), where shown on the Exploded View drawing. Attach each guide to the inside face of the legs with screws.

5 Rout ¼" round-overs on all outside edges of the butcher block top, where shown on the Exploded View drawing. Finish-sand the butcher block table and drawer.

6 Screw the laminated drawer front to the drawer box front (E).

7 Using the full-size pattern on the *WOOD PATTERNS®* insert, trans-



Position the leg on the routing jig with the bottom end of the leg/disc against the right-hand stopblock. Then, rout the first past.

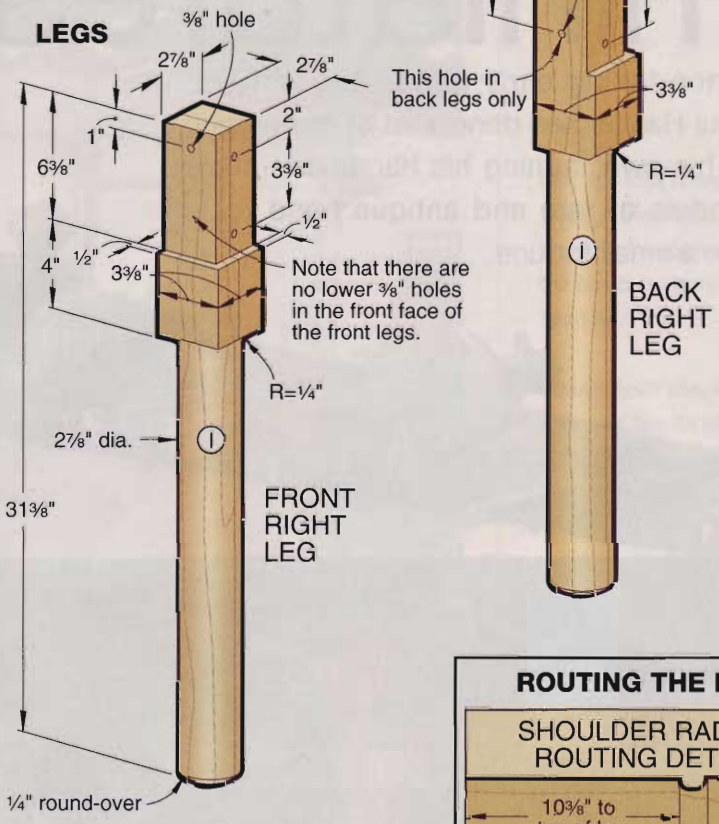
fer the pattern, and bandsaw the towel bar supports (J) to shape. Drill a pair of mounting holes in each support.

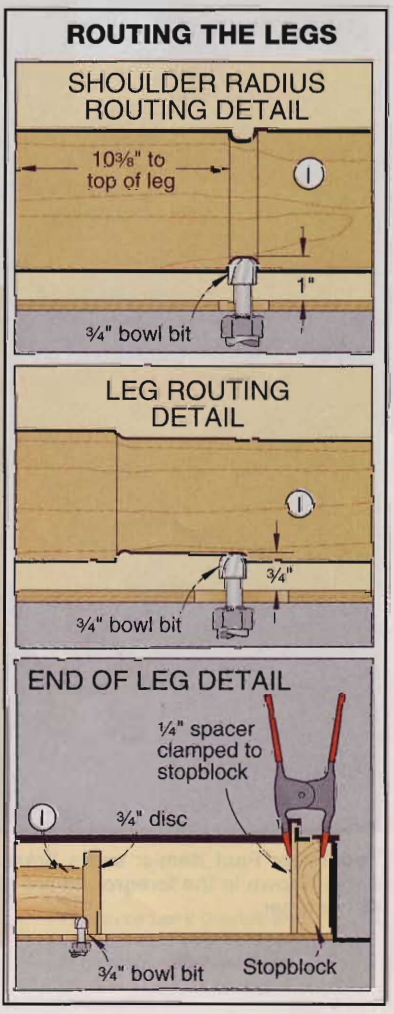
8 Cut the hanger rod (K) to length from 1" dowel stock. Glue and clamp the hanger rod between the supports. Finish-sand the hanger assembly. Next, dry-clamp the hanger assembly against the top, where dimensioned on the Exploded View drawing. Use the holes in the supports (J) as guides to drill mating holes into one of the aprons. Attach the towel bar assembly to an apron. Crosscut ½" dowel stock to length, and plug the screw holes.

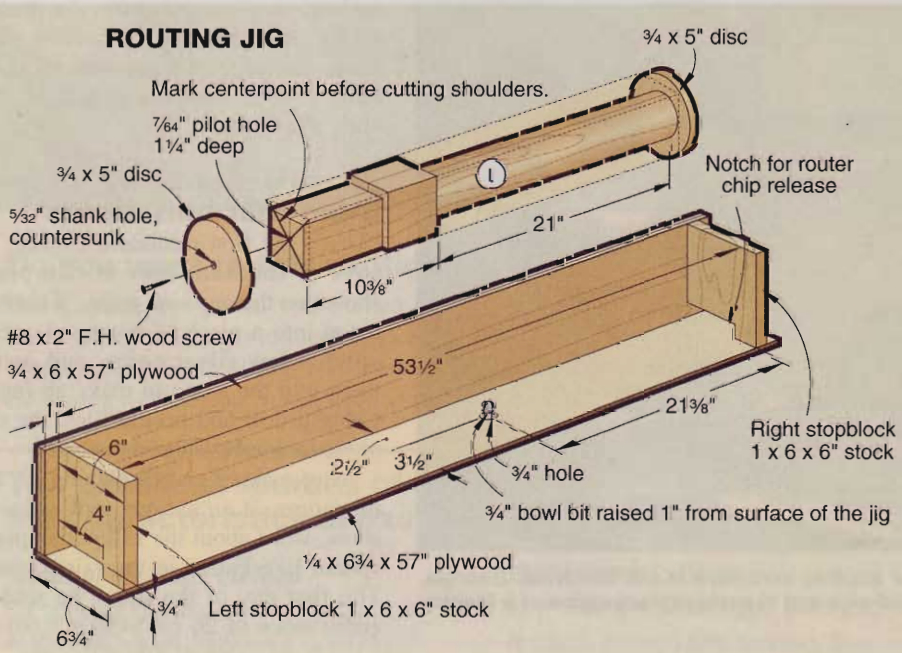
9 Crosscut ¾" dowel stock to the appropriate lengths, and plug the lag bolt holes in the corner pieces (D). Be careful when cutting the dowel plugs to length. You don't want them too stand to proud, as the end grain can burn easily when you sand the plugs flush with the surfaces of the corner pieces and aprons. Repeat the process with ½" dowel stock to plug the holes in the supports (J).

10 Apply a clear finish. See the tint block on *page 51* or apply several coats of Behlens Salad Bowl Finish.

Written by **Marlen Kemmet**
Project Design: **Dave Ashe**
Photographs: **Hetherington Photography**
Illustrations: **Roxanne LeMoine; Lorna Johnson**

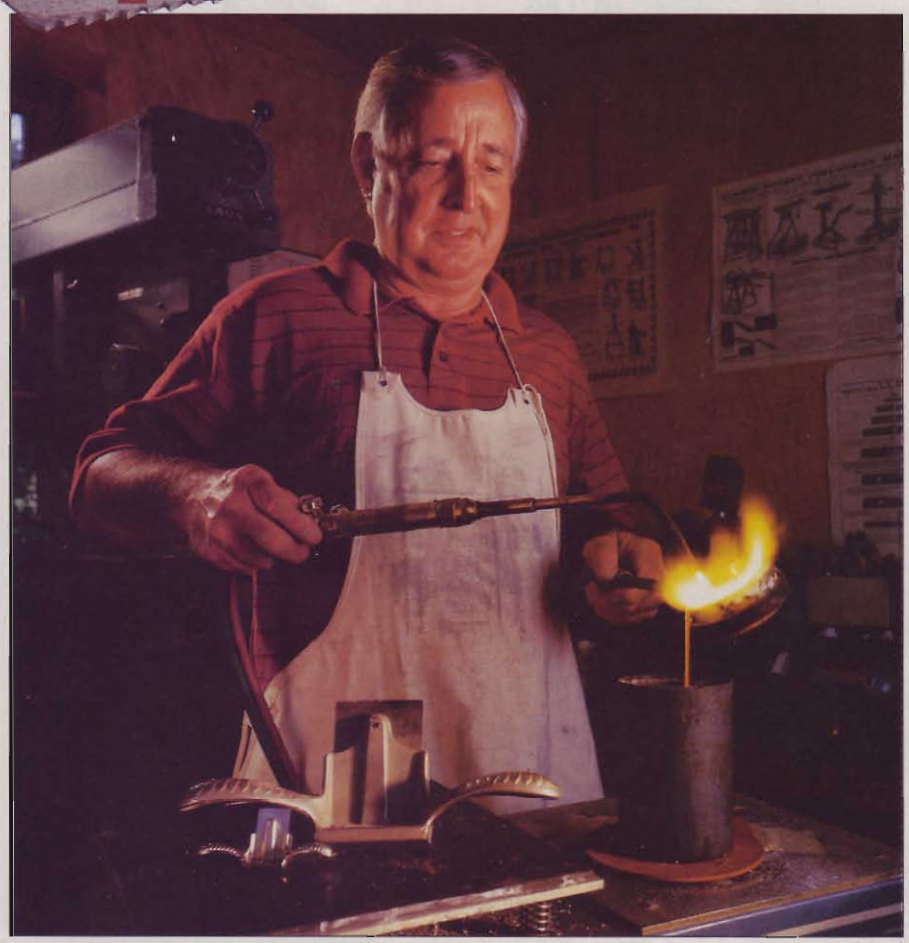






amazing miniatures

Since taking early retirement in 1995, Paul Hamler has done a lot of downsizing of his own, turning his handmade scale models of rare and antique hand tools into a small fortune.



Toolmaker Paul Hamler casts brass for another miniature in his Snellville, Georgia, shop. Shown in the foreground are his full-size and ⅓-scale reproductions of a Stanley #81 scraper.

Just down the road from Georgia's monolithic Stone Mountain, the world's largest exposed piece of granite, Paul Hamler removes tiny, perfectly proportioned hand tools from a display case in his home. His Alabama-born drawl quickens, and he peppers the conversation with such phrases as: "There's an interesting story behind this one here..."

But Hamler's remarkable reproductions are more than mere eye-candy. Each tool functions in every way like its full-size counterpart. To demonstrate, he draws an inch-long plane across the edge of a Popsicle stick, creating a Tom Thumb-size pile of long, curly shavings.

There's money in them thar miniatures

"That's the first miniature I made," he says of the Sandusky coffin plane, shown on the *opposite page*. "I carved a tenon into a piece of boxwood, melted down a few silver coins, and poured them into the tenon to make an ingot." Using a drill and needle files, the neophyte toolmaker shaped the body.

After making and displaying his first miniatures at an antique tool collectors show, word about the Lilliputian planes spread like kudzu in the rainy season. The first day of the show, he sold his entire stock of 20 (at $450 apiece) and

a sawload of tiny tools

1. Bailey #11 spokeshave, **2.** English-style slotting gauge, **3.** Sargent "Lady Bug" plane, **4.** Stanley #35 transitional plane, **5.** Charles Miller 1872 Mod 50 plane, **6.** Tidey bevel plane, **7.** Sandusky center-wheel plough plane, **8.** Wescott monkey wrench, **9.** Marples Ultimatum brace, **10.** Stratton brothers level.

took orders for 20 more. "I kind of got the idea there might be a market out there for this kind of thing," he grins.

Indeed there is. Last summer, Paul decided to craft full-size and miniature reproductions, shown on *page 59*, of a one-of-a-kind Moseley plough plane. "This was a special ivory edition of John Moseley's wooden plough plane, hand-made for the 1855 World's Fair in Paris." The original was discovered in 1980 tucked away in the drawer of an abandoned workbench at Record-Ridgeway in London, the ends of its arms sawed off, apparently so it would fit in the drawer. The tool was put on display at the company's main office.

"This one employee got fired from the company and as he left, he stole the plane from the display case," the toolmaker intimates. "He took a couple of photos of it and was negotiating to sell it to a collector in America, but didn't know what it was worth. So this fella sent the photos to a friend of mine for an appraisal. He told my friend, 'I pinched this plane, and it's hidden in my attic.'

"When my friend called him a couple weeks later, he found out the guy had died. So to this day, the original tool is probably still in that attic." Today, Paul estimates that plane would sell for $80,000–$100,000. His five full-size reproductions fetched $12,000 each; the miniatures, $3,000.

To make the blade of his tiny Sandusky coffin plane, shown here on a Popsicle stick, Hamler cut and honed a small section of a hobby-knife blade.

The tool-nut doesn't fall far from the tree

The son of a carpenter and cabinetmaker, Paul himself took a shining to the trade, and as a teen began building billiard tables in the family garage. "I didn't have much of a shop at the time," he confides. "I'd build a table, then sell it and use the money to buy more tools. It got to where the shop was so full of tools, I had to start setting up the pool tables out there in the living room."

The tools he gathered at that point were mostly out of necessity. While building furniture for the home he shares with his wife Gloria, "I got fascinated with spokeshaves, scrapers, and all." Then, Paul confesses, his fascination with hand tools turned a corner. "It's like anything you collect. It becomes a disease," he chuckles. "After I got all the common stuff, I started collecting the exotics. And I couldn't afford $300 or $400 for a genuine collectible plow plane."

One day, while thumbing through a book about reproduction tools, he stumbled upon a side profile illustration of an Ultimatum brace, drawn in ⅓ scale. "And I thought, well heck, I'll just make me one. So I used the drawing in the book as a reference and made my first ⅓-scale model."

Continued

amazing miniatures

Today's technology; yesterday's tools

To make the metal parts for his miniatures, Paul learned the art of investment (or "lost wax") casting, described in the box *below*. He first traces around all of the individual parts of a full-size tool, then scans the tracings into his computer, where he can quickly reduce them to 33% of original size.

Using those scaled-down drawings, he builds a fully functional prototype from a lightweight, high-tech plastic. "Anything you can do to wood or metal, you can do with this stuff," the toolmaker marvels. "You can mill it, sand it, saw it, drill it, tap it, carve it, and the detail is just phenomenal." When he's satisfied with the function and appearance of the prototype, he disassembles it and casts the pieces.

A little help from his friends

As you might imagine, producing tools much smaller than their intended size poses some logistical problems. For example, for Paul's miniature levels (including a Davis inclinometer complete with its 360°-rotating vial), he couldn't just order the spirit vials from the manufacturer's parts department.

"That was a hard one," he says of his research to make the vials, "because nobody would share any information with me. Finally I found an older fella who'd worked in a factory that made them." The trick, he learned, was to heat a glass tube to just the right temperature to draw the alcohol up into it, leaving a small bubble. If the glass was too hot, it would shatter. "Then I had to figure how to seal the other end of the tube without it becoming a blowtorch," he laughs.

While thinking through the unique three-leaf hinge of a Tidey bevel plane, Paul was stumped as how to roll each barrel of each leaf consistently: They all had to align perfectly to accept the hinge pin. "Believe it or not, one night, we were watching 'Schindler's List' on video, and there's a scene in a factory where they're making hinges." That scene showed one of the characters using a jig to curl the barrels, and within hours, Paul had made a miniature version of the jig. Problem solved.

He likes playing with big tools, too

A living room that once sported Paul's handmade furniture now overflows with full-size treadle scrollsaws, some of which he already has reproduced in miniature. His "power" tool collection spills over into the family's two-car garage (which shelters just one vehicle: his Gold Wing motorcycle, still warm from the 3,000-mile road trip he took with his son, Jesse).

He points to a dusty lathe in the corner. "That one there's a movie star," he glows. In the opening scene of the 1999 TV movie "The Simple Life of Noah Dearborn," Sidney Poitier is shown turning at the tool. Paul provided technical advice and more old tools to the film's producers.

Next to the lathe stands an 1890s-vintage Barnes #4 treadle-powered tablesaw. "There's only four of these left in the country. The Smithsonian

cast creations

Every metal part in Paul Hamler's reproduction tools begins its life as a block of space-age pale yellow plastic shown at upper left. After carving the prototype part (painted grey in this photo), Hamler molds it using high-tech room-temperature vulcanizing (RTV) rubber.

After carefully separating the rubber mold from the prototype part, he injects it with pink modeling wax. When the wax cools and hardens, he has a disposable part (shown in the mold) identical to the original.

He then "sprues up", or suspends the wax part with a stem of wax, called a sprue, on the base of a flask (shown lower right in the photo). Next, he places the cylindrical flask onto its base and fills it with investment—a material similar to plaster of paris.

Once the plaster has cured, Paul bakes it in an oven, melting and draining the wax part and sprue, and leaving a perfect, part-shaped void, into which he'll pour molten metal to make the finished part (shown in hand). Is there any loss of detail? "I've sprued-up a bumblebee, burned him out and cast him in gold. You can see the veins in his wings, so it's pretty darned good," he grins.

Museum's got one of them, I've got two, and the fourth one is somewhere in Kansas," he says matter-of-factly.

Although every tool Hamler buys, he does so with the intention of making it in miniature, the question begs to be asked: What will he do with his growing collection? "I'd like to build me a place up in the North Georgia mountains, and make it into a museum for old tools." It had better be be a pretty big place. Or a very small one.

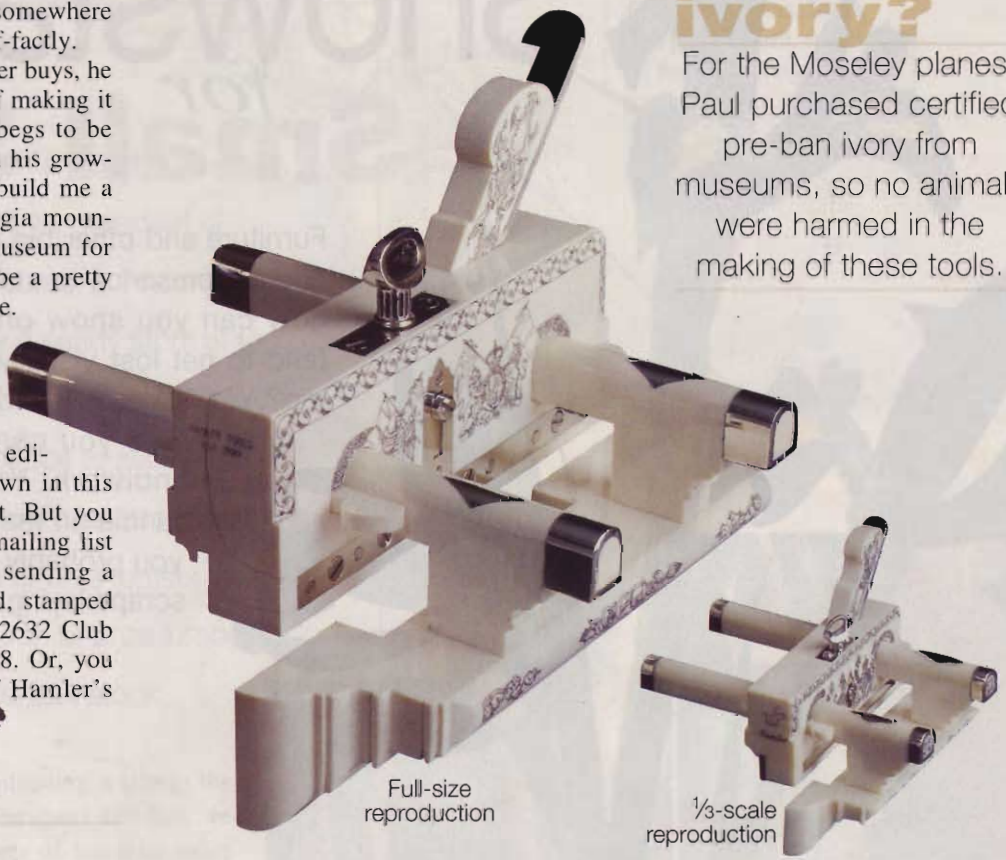
Gotta have one of Paul's tools?

Because each reproduction tool he makes is a limited edition, most of the tools shown in this story have already sold out. But you can get on Paul Hamler's mailing list of upcoming offerings by sending a business-size self-addressed, stamped envelope to Hamler Tools, 2632 Club Drive, Snellville, GA, 30078. Or, you can build a block plane of Hamler's design, starting on *page 41*.

Written by **Dave Campbell**
Photographs: **Emily Minton**

Tools made of ivory?

For the Moseley planes, Paul purchased certified pre-ban ivory from museums, so no animals were harmed in the making of these tools.



Full-size reproduction

⅓-scale reproduction

Paul's favorite books for antique tool collectors

1 *Patented Transitional and Metallic Planes in America 1827-1927*, by Roger K. Smith, 336 pages, North Village Publishing, 1981. $75, hardcover.

2 *Patented Transitional and Metallic Planes in America—Vol. II*, by Roger K. Smith, 400 pages, North Village Publishing, 1982. $90, hardcover.

3 *The Art of Fine Tools*, by Sandor Nagyszalanczy, 240 pages, Taunton Press, 1998. $37, hardcover.

4 *A Guide to the Makers of American Wooden Planes*, 3rd Edition, by Emil & Martyl Pollak, 462 pages, Astragal Press, 1994. $35, softcover.

5 *Antique & Collectible Stanley Tools: Guide to Identity & Value*, 2nd Edition, by John Walter, 885 pages, Tool Merchant, 1996. $45, hardcover.

Paul's reproductions of the Moseley plough plane are made of solid ivory with sterling-silver inlay.

Side view of Paul's reproduction plane

Showstands *for* Small Stuff

Furniture and other big projects have a large enough presence to stand on their own, but how can you show off smaller items that tend to get lost visually on a shelf or tabletop? We've come up with four easy-to-build answers you can scale to suit your handiwork. You needn't spend a bundle on materials, either. In fact, you probably can make each from scraps laying around your shop.

put it on a pedestal

This one is simplicity itself. In fact, you'll likely spend more time waiting for the paint to dry than you will constructing the pedestal.

Project Design: Robert Wineland

one curvaceous cradle

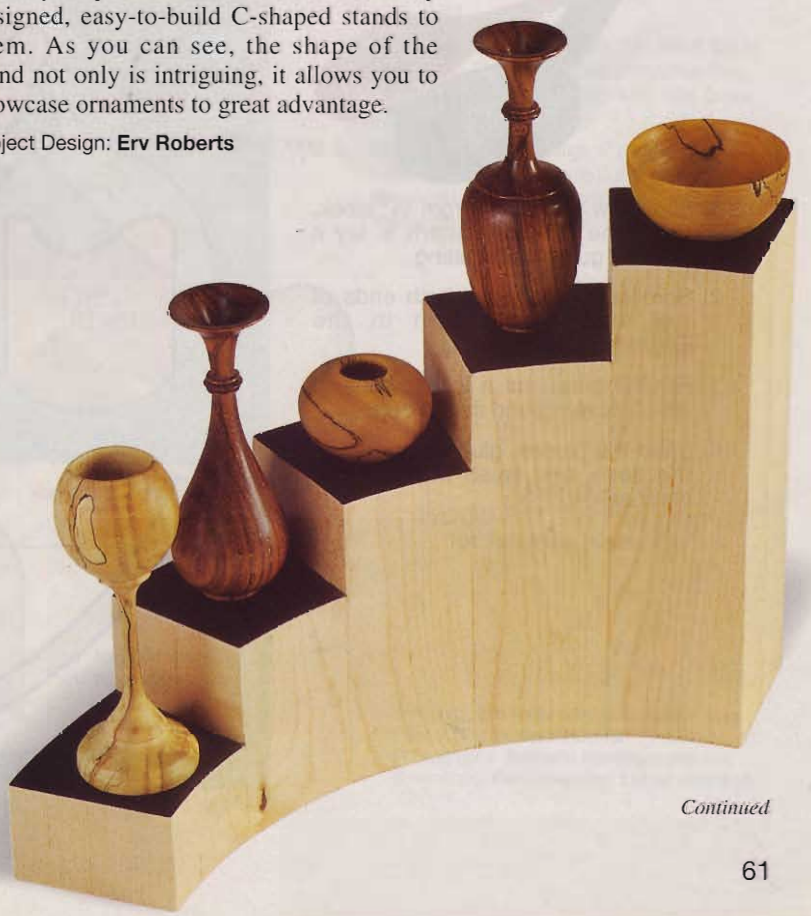
Give a lift to long, thin objects, like this spoon made by Frank Wright, with this cradle stand. To make it, all you need is a few minutes with a scrollsaw and router.

Project Design: **Erv Roberts**

fun-dangle

You'll be a big hit with friends and relatives when you present one of these cleverly designed, easy-to-build C-shaped stands to them. As you can see, the shape of the stand not only is intriguing, it allows you to showcase ornaments to great advantage.

Project Design: **Erv Roberts**



stairway display

Want to amaze everyone with your creativity and your woodworking skills? Then stage a series of small projects on this five-tier stand. It's one of the niftiest scrapwood projects we've seen in a long while.

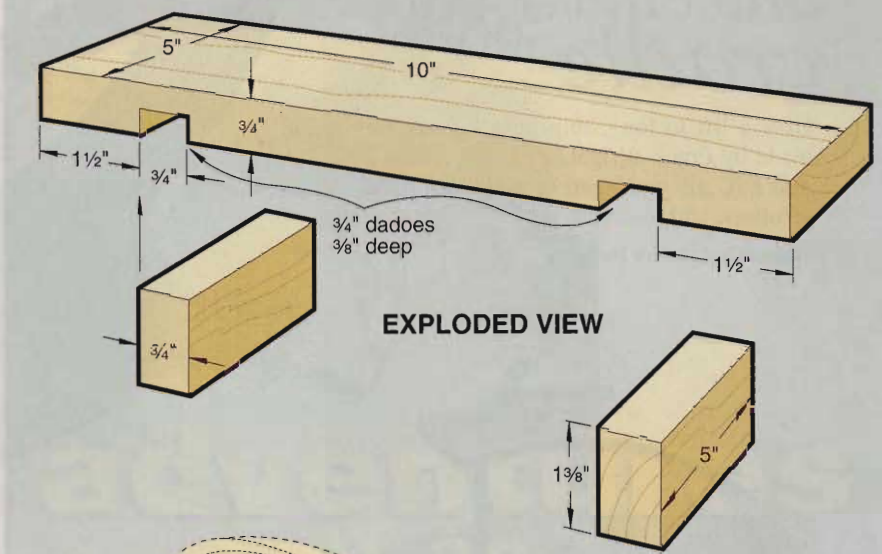
Project Design: **Erv Roberts**

Continued

Showstands *for* Small Stuff

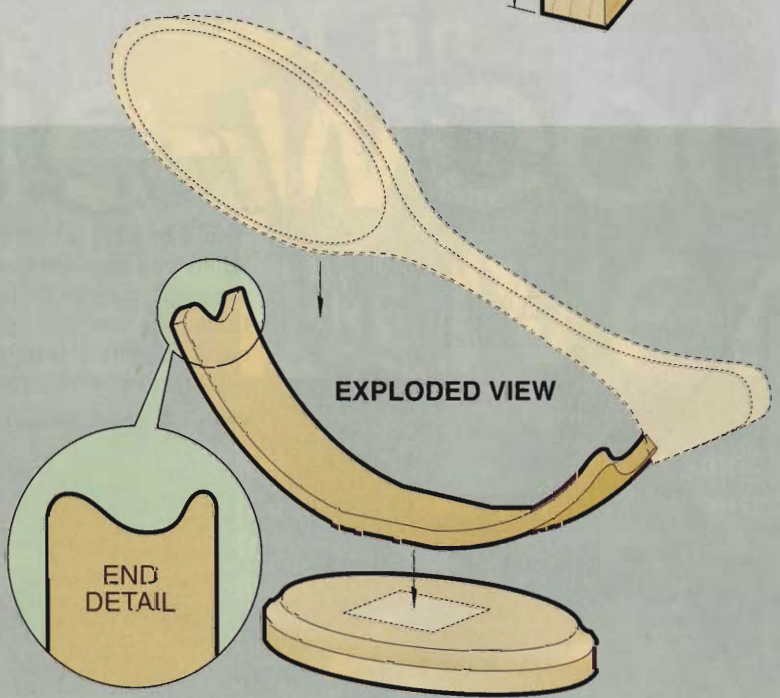
put it on a pedestal

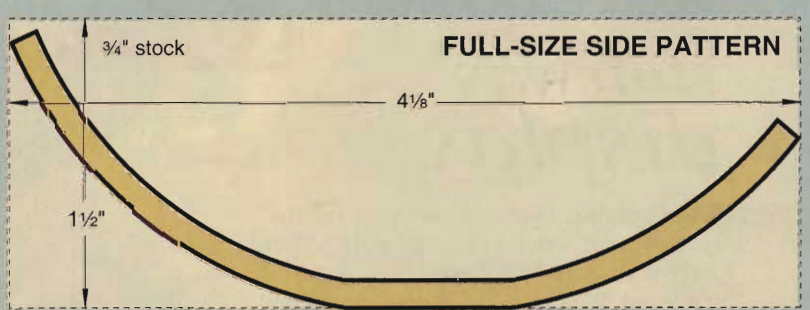
1. Cut the top and feet from ¾" stock.
2. Rout dadoes for the feet, and glue them in place.
3. Sand, prime, and paint. (We sprayed on several coats of black enamel.) After the finish dries, glue four ⅜"-diameter felt discs to the bottom of the feet.

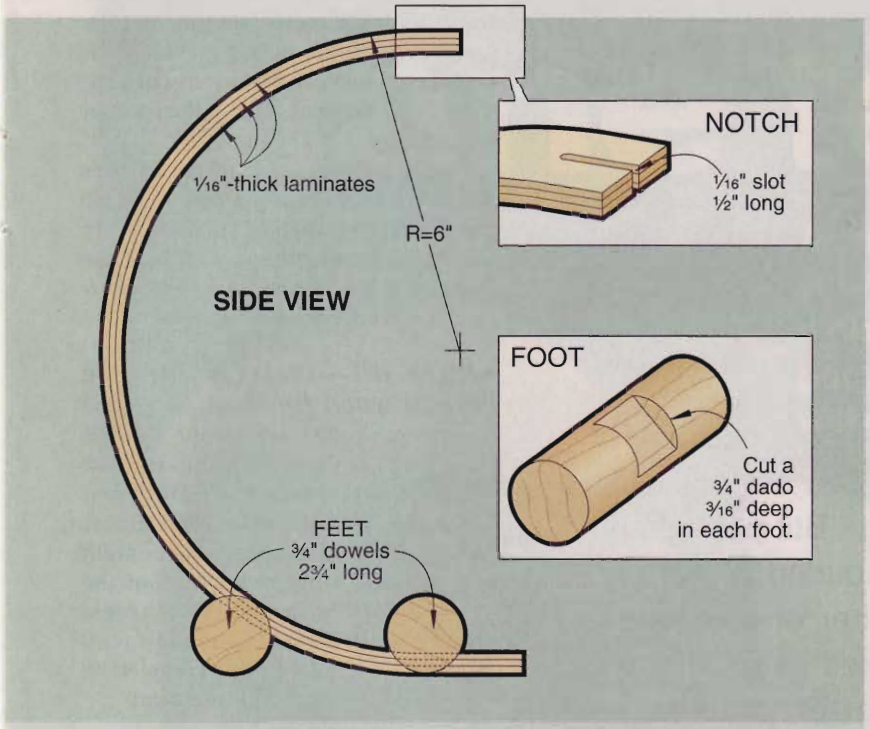


one curvaceous cradle

1. Scrollsaw the cradle from ¾" stock, using the full-size pattern to lay it out and guide your cutting.
2. Scrollsaw notches at both ends of the stock, as shown in the Exploded View drawing.
3. For the base, cut a 2×3" oval, and rout a cove around its top edge.
4. Sand the pieces, glue the cradle to the base, and finish with paint or clear sealer.

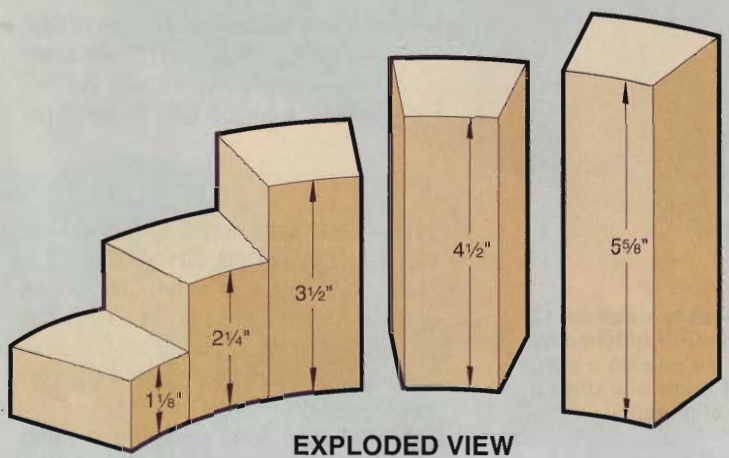


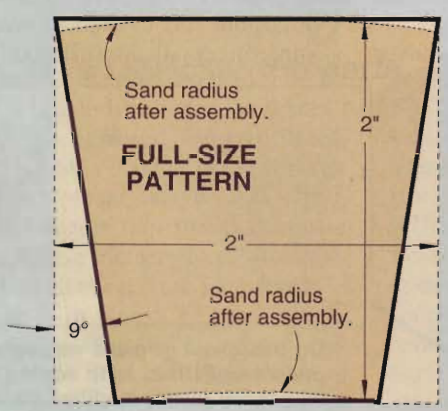




fun-dangle

1. Rip three 1/16×3/4" strips. (We used maple for the outer laminates and walnut for the center.)
2. Bend the strips and clamp them together using white glue.
3. Cut a 1/16" notch 1/2" long in one end of the laminated arch.
4. Make the feet from 3/4" dowels, and dado them as dimensioned on the Side View drawing.
5. Sand and finish the parts, then glue on the feet.





stairway display

1. Transfer the full-size pattern at *left* to the end of a piece of 2×2×20" stock. (We used birch).
2. Bevel-rip the blank.
3. Crosscut the blank to the lengths shown in the Exploded View drawing.
4. Glue the "steps" together, and sand them into a smooth arc.
5. We painted the steps black and protected the rest with clear finish.

NOTE: Turnings and carvings are not available as projects

oil finishes

What you need to know

Oil finishes have a lot of appeal because of their easy application—you simply wipe them on and off with a rag. But perhaps no area of finishing is more clouded in mystery. That's because any number of completely different products are labeled as oil finishes. So come along as we attempt to make sense of it all.

To identify each of 13 different oil finishes by type, we poured a puddle of each one onto a sheet of glass.

We recently went shopping with one mission in mind: Buy every clear finish with the word "oil" in its title. Our buying spree netted the 13 products shown here. But as we discovered, these "oil" finishes were actually four different types of coatings.

It turns out that some of the finishes are pure oils, one is modified oil, some are oil/varnish blends, and some are wiping varnishes. And as you'll see, we found a lot of difference in how they perform. Here's a quick look at each:

• ***Pure oil—strictly for the patient wood finisher.*** We found two pure tung oils: Hope's 100% Tung Oil and Behlen Master Pure Tung Oil. True to their names, these products contain only raw oil from the nuts of tung trees. These oils take many days to dry completely, so we rarely use them.

Pure oil finishes

• ***Modified oil—added metals speed drying.*** The only product we uncovered in this category was Klean-Strip Boiled Linseed Oil. Despite its

How we tell one type of oil finish from another

Here's a simple way to tell one type of "oil" finish from another. In a 60-80° F room, place a small puddle of finish on a nonporous surface, such as glass. Wait two days.

As shown *below*, a wiping varnish will be dry, smooth, and hard. An oil/varnish blend will be wrinkly and dried, but soft enough to scratch with your fingernail. Modified oils will be

On this sheet of glass we applied small puddles of (from left): wiping varnish, oil/varnish blend, modified oil, and pure oil. (We turned the pane upright to show that the pure oil runs.)

Modified oil finish

name, this product is not heated to the point of boiling. Instead, the word "boiled" means that the linseed oil, which comes from the seeds of the flax plant, is modified with the addition of drying metals. Without these metals, raw linseed oil takes weeks or months to dry.

Although a thin application of boiled linseed oil will dry in about a day, the resulting finish is quite soft, so we don't recommend it. You can add boiled linseed oil to oil-based paints to improve flow and lessen brush drag.

• Oil/Varnish blends—just right for a natural-wood look. By far the largest group of oil finishes available today, these products contain mostly linseed and tung oils modified with drying metals, some solvents, and varnish. Products in this category include Deft Danish Oil Finish, General Finishes Danish Oil, Minwax Antique Oil Finish, Minwax Tung Oil Finish, Olympic Antique Oil Finish, Watco Danish Oil Finish, and Watco Teak Oil Finish. (So called "teak" oils do not come from teak trees. This title only refers to the products' appropriateness for exterior surfaces, such as teak boat decks. The two Watco products are similar in composition, but the "teak" version contains a fungicide.)

Oil/Varnish blends

Because we find much more use in the *WOOD*® magazine shop for this type of oil finish than any of the others, we'll devote the lion's share of this article to oil/varnish blends. These products give a rich, natural, and "uncoated" look and feel to wood because they penetrate the surface. But they provide little in the way of a protective film, so we reserve them for lightly handled projects, such as clocks, nonfunctional turned vessels, models, and light-use furniture. We don't apply them to tabletops, chairs, shelves, floors, and other hard-use surfaces.

Compared to film-forming finishes, such as shellac, polyurethane, varnishes, or lacquer, oils are easy to renew or repair. You simply clean the surface (use a damp towel or a mild soap if the dirt proves stubborn) and wipe on some new oil. Just keep in mind that oil/varnish finishes require a porous surface, so don't apply them over film-forming finishes.

• Wiping varnishes—for projects that need protection. These products may have "oil" in their titles, but they are mostly varnish, and they perform like varnish. Included in this category are Formby's Traditional Tung Oil Finish, Hope's Tung Oil Varnish, and McCloskey Tung Oil. They are thinned to the point that you can wipe them on, but they dry faster than an oil/varnish blend. Unlike oil finishes, with which you must wipe away all excess finish, you don't need to wipe away excess varnish unless it runs.

You can build a protective finish with these products, but it will require more applications than if you used a brushed-on varnish. These products provide an easy, but time-consuming, way to build a protective coating, so we rarely use them in our shop.

Wiping varnishes

wrinkly and extremely soft. Pure oils will still be liquid.

Some tips for using oil/varnish blends

Although oil/varnish blends are a breeze to apply, they can create problems for the unsuspecting finisher. Here's how we successfully use them in the *WOOD* magazine shop.

- Oil finishes do not hide sanding scratches well. So sand the project surface to 320-grit before applying oil.
- Flood the first coat onto the project so as much of it soaks in as possible. Check the surface after a few minutes and reapply the oil to end grain or other areas that have soaked up all of the oil. Wipe off all excess oil.
- Oil finishes tend to bleed back out of porous woods, such as red oak (see the photo at *right*). This bleedback forms little puddles that you wipe away before they harden and form scabs. Check an oiled surface every 15 minutes after application, and wipe away the bleedback until it stops.
- Allow the oil to dry overnight. Some dust may have floated out of the pores or settled on the surface. Knock down these dust nibs with 320-grit sandpaper or an ultra-fine woven-plastic pad.

If, despite your best efforts, you get bleed-back scabs, you usually can eliminate them by "wet-sanding" the surface with more oil and an ultra-fine woven-plastic pad. If the scabs harden to the point where that doesn't work, you'll have to strip the finish.

Oil/varnish blends bleed back out of the pores of such woods as red oak. You need to wipe away these tiny puddles before they dry.

- Apply two or three coats, depending on whether the wood continues to absorb the oil. Applying more coats is counterproductive because none of it will soak in, and you will wipe off everything you've applied.

A few words about using oil finishes safely

One of the beauties of oil finishes is that you only need a clean rag to apply them. But be warned that you must handle those rags with care after use. To prevent spontaneous combustion (oils create lots of heat when exposed to oxygen), you need to seal the rags in a water-filled metal can, or dry them properly. You can hang them on a line or lay them out on concrete; just make sure their surfaces don't overlap. That's where the heat builds up.

Written by **Bill Krier with Jan Hale Svec**
Photographs: **Baldwin Photography**

floral flask

Dramatic figured wood sets off the clean lines of this canteen-style vase. And turning it's easy, even with that terrific mock-inlaid face.

Select striking stock to start

1 Plane or sand the front face of a 2×10×10" turning block flat and smooth. Ensure that the back face is flat and parallel to the front. Wood grain gives this vase visual impact, so highly figured stock or a burl would be a good choice.

2 Select a piece of figured or burl veneer for the circular highlight on front. (The vase shown in the photo *below* combines buckeye burl veneer and a big leaf maple blank.)

3 Cut the veneer to a square about ¼" smaller all around than the blank. If you have a wavy piece of veneer, flatten it, following the steps in the sidebar "Don't Let a Few Wrinkles Worry You", *below*.

Glue veneer to the blank

1 Sand some scraps of veneer to dust, catching the dust on a clean sheet of paper. A sanding block with 80- or 100-grit paper will do the trick.

2 Mix enough epoxy to cover the back of the veneer. Slow-setting adhesive, often labeled as two-ton

applying veneer
don't let a few wrinkles worry you

Highly figured and burl veneers—the most desirable choices for accenting your vase blank—rarely come to you flat. The unruly grain that gives such wood its beauty also leads to internal stresses that cause wrinkling and warping as the veneer dries. Before you can glue one of these veneers to a flat surface, you must press out the wrinkles without crumbling the veneer. Here's how.

epoxy, works better in this application than the five-minute variety; it will allow you longer working time.

3 Stir enough veneer sanding dust into the epoxy to give it the veneer's color. Spread the mix on back of the veneer.

4 Center the veneer on the front surface of the turning blank. Cover it with waxed paper; then lay a scrapwood caul on top, and clamp. Allow the epoxy to cure overnight.

5 After unclamping, you'll find that epoxy has squeezed through holes and cracks in the veneer. If any spots remain open, mix some more epoxy and sanding dust, and fill them.

6 Scrape off the excess epoxy and smooth the veneer with a cabinet scraper, as shown in *Photo 1* on the *next page*. Then lightly block-sand the veneer with 220-grit sandpaper, taking care not to cut through it.

Shape the edge and the front

1 Mark the center on back of the veneered blank. At the center, draw one circle the same diameter as your 3–4" lathe faceplate and another that's the largest you can fit on the blank.

2 Bandsaw around the largest circle, protecting the veneered face with masking tape.

3 Bandsaw a wasteblock the same diameter as your lathe faceplate from 1" scrapwood. Glue it to the back of the blank, inside the small circle.

4 Screw the faceplate to the wasteblock. Mount the faceplate and blank on the lathe.

5 True the edge of the blank with a bowl gouge, and turn the diameter down to slightly over the finished diameter of 8¼".

6 Draw a reference line centered on the edge. You can do this by holding a pencil against the blank as it spins. Also draw a reference line 1" in from the edge on each face.

7 With a gouge, round the edge between the centerline and both faces. (You can photocopy the Radius Guide on *page 69*, glue the copy to light cardboard, and cut it out to gauge the curves.) Form a symmetrical curve from the back face around the edge onto the front face, blending smoothly into the existing surfaces at the guidelines. The thin veneer doesn't allow much leeway for cutting into the front of the vase.

8 Carefully trim the veneer to a 6¼"-diameter circle. The point of a skew makes the cut neatly, as shown in *Photo 2*. Cut in deeply enough to create a shallow V-groove around the veneer. Move outward about 3/16", and cut another V-groove.

9 Sand the curved edge with progressively finer grits from 100–220. At this point, you can finish the front and edge with commercial French polish or homemade shellac/oil polish. (See *WOOD®* magazine, issue 120, page 8, for details on these finishes.)

If you finish the front and edge now, you'll have to touch up the finish later, after you bore the vial hole and flatten part of the edge to form the base. If you prefer, you can wait and finish the completed vase later.

Turn it around to turn the back

1 Dismount the turning, and remove the faceplate from the wasteblock.

Continued

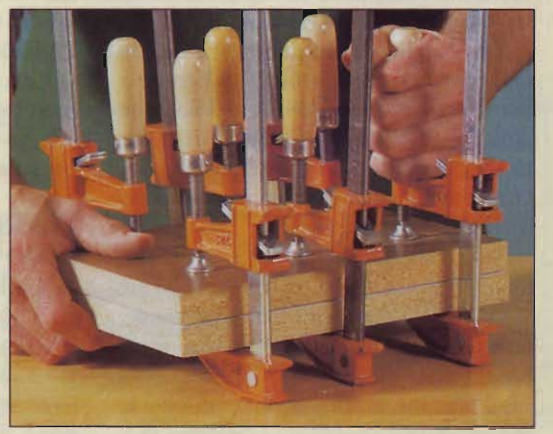
1 Cut a pair of platens—pieces of flat, smooth ¾"-thick scrapwood slightly larger than the veneer. Plywood, particleboard, or MDF would work well.

2 Soak the veneer (more than one piece, if you wish) in hot water until it's pliable. You could bathe it in a commercial veneer-flattening solution, too, or add some glycerine to the water if you wish. (Hot water worked fine for our small piece, destined to be glued immediately onto a flat surface.)

3 Stack several layers of clean, absorbent paper on one platen. You could use kraft paper, paper towels, or unprinted newsprint. Don't put printed newspaper pages in contact with the wet veneer, however.

4 Lay the wet veneer on the paper stack, and cover it with more layers of paper, as shown in the photo at *left*. If you're flattening several pieces of veneer, build a Dagwood sandwich of alternating paper and veneer layers, finishing up with a paper layer.

5 Place the other platen atop the stack, and clamp the two platens together to flatten the sandwich, as shown in the photo *above right*.



6 Unclamp the stack four hours later, and replace the paper with dry sheets. Reclamp. Change the paper at four-hour intervals until the veneer dries. Leave the stack clamped overnight with dry paper. Store the veneer clamped between the platens with dry paper.

floral flask

Scrape the veneer smooth after allowing the glue to dry. That's olive ash burl veneer on this Honduras mahogany blank.

Define the veneer panel on front as you shape the edge. This turning features beautiful redwood burl veneer on a big leaf maple burl blank.

Insert the turning into a shop-made jam chuck for parting off the waste block and completing the back of the flask.

2 Construct a jam chuck, like the one shown in the Jam Chuck drawing.

To build the chuck, bandsaw three 10½"-diameter discs from ¾"-thick particleboard or plywood. On one disc, draw a centered circle the diameter of the lathe faceplate; on the other two, lay out centered 7¾" circles.

Cut out the large center circles to make two rings. It's okay to bandsaw into the rings from the edge. Stack and glue the two rings to the solid disc, the faceplate outline on the opposite face. Offset the bandsaw entry cuts. Bore the finger holes where shown.

Attach the faceplate to the back, and mount the assembly on the lathe. True the outside edge. With the bowl gouge, turn the inside to accept the vase turning snugly.

3 Place the turning in the jam chuck, as shown in *Photo 3*. Ensure that the face of the turning lies flat against the back face inside the chuck.

To secure the turning to the chuck, drive two screws into the edge of the chuck as setscrews, locating them so they'll contact the turning at the center of the edge. Position one screw where it will contact the turning at the point where the vial hole will be bored; the other, 180° away, in the area that will be cut away to form the flat base. Drive the screws only ⅛" or less into the turning itself.

4 Install a rotating cone center in the tailstock, and slide it up against the wasteblock for support. Then, part off the wasteblock.

5 Take a light clean-up cut across the back of the vase, as needed. Finish-sand the back of the vase. If you put on a lathe-applied finish earlier, finish the back the same way.

Flatten the base; bore a hole

1 Build a scrapwood cutoff jig, shown in the drawing on the *opposite page*.

2 Place the jig against your table-saw's fence; then slide the fence over so the blade will cut ⅜" off the edge of the turning where shown. Elevate the blade to saw through the jig and the vase. Then, with the vase on the jig, make the cut.

3 Bore a 1" hole 4" deep, centered on the edge opposite the flat. The vial fits into this hole; the completed vase looks best when the hole's centerline is perpendicular to the base and runs right through the vase center.

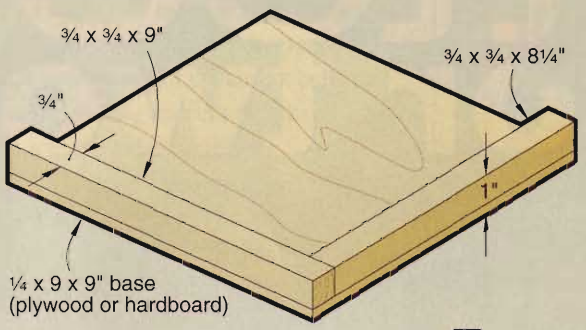
To bore the hole straight and true, chuck a 1" Forstner bit in your drill press. Position a fence on the drill-press table to center the edge of the turning under the bit. Then move the turning along the fence to aim the center point of the bit at the center of the vase. Clamp the vase to the fence, and bore the hole.

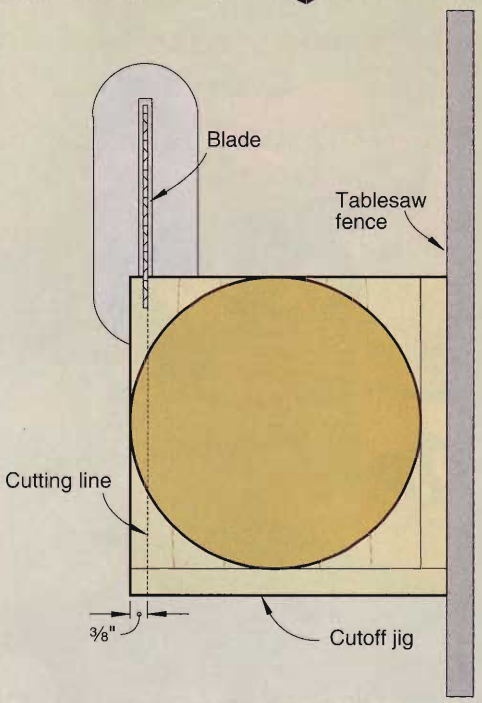
4 Sand a chamfer around the hole, and sand the flat bottom as necessary. If you've been finishing the vase as you go, finish the bottom and the chamfered opening on top. Otherwise, apply a clear finish, such as spray lacquer, overall. After the finish dries, slide a vase vial into the hole to complete the vase.

Buying guide

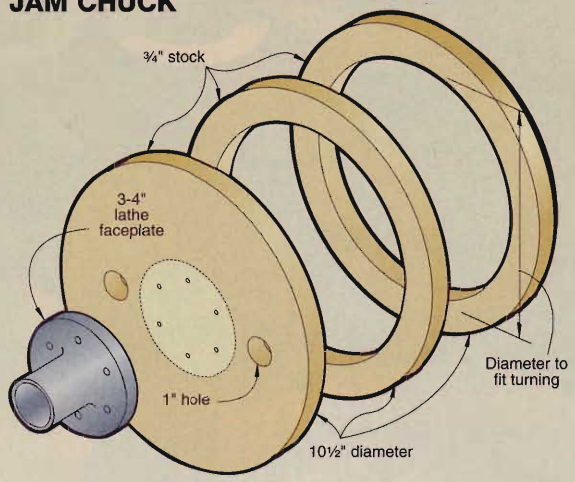
Vase vials, burl blanks. Glass vial, ⅞×3¾", with lipped rim, set of three, $9.25 ppd. in U.S. Additional vials, $1.50 each. Send check or money order payable to:
Warren Vienneau to Turned Works,
Warren Vienneau, 146 Ridge Ave.,
Pittsfield, MA 01201.
Call Warren at 413/443-2907
for price and availability of
burl blanks and veneers.

CUTOFF JIG

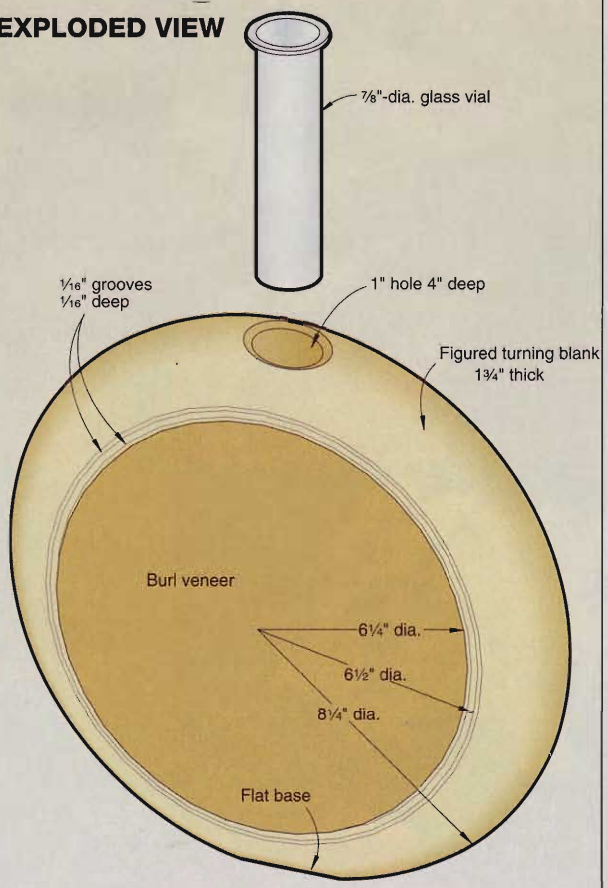




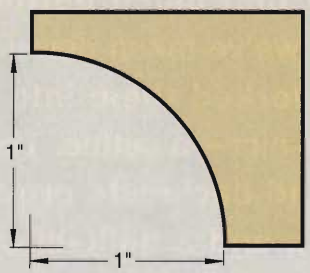
JAM CHUCK



EXPLODED VIEW

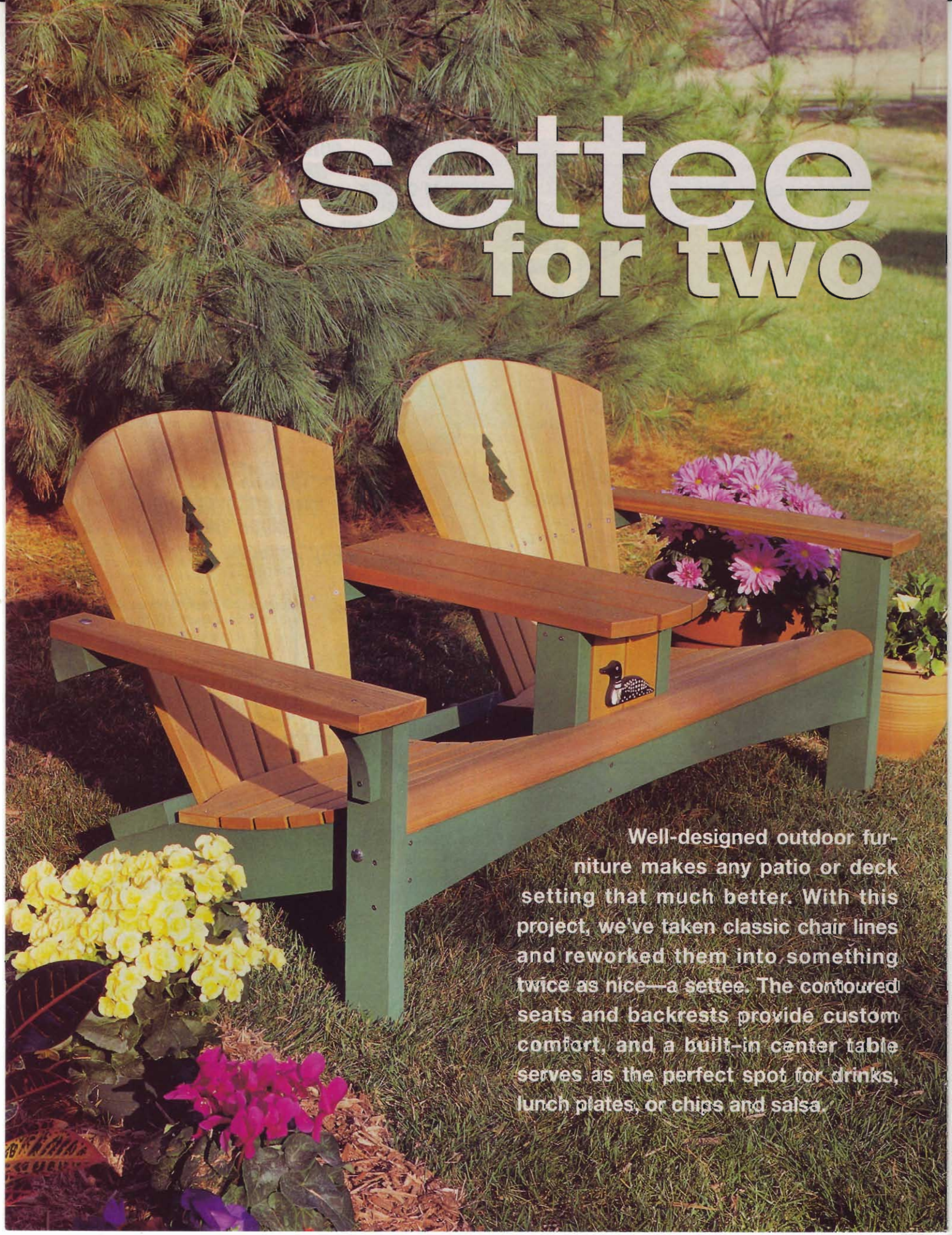


RADIUS GUIDE



Project Design: **Turned Works, Warren Vienneau** Illustrations: **Roxanne LeMoine; Lorna Johnson** Photographs: **Hetherington Photography**

settee for two



Well-designed outdoor furniture makes any patio or deck setting that much better. With this project, we've taken classic chair lines and reworked them into something twice as nice—a settee. The contoured seats and backrests provide custom comfort, and a built-in center table serves as the perfect spot for drinks, lunch plates, or chips and salsa.

First, bring up the rear (legs)

1 Start by making photocopies of the patterns for the rear legs (A) and the center supports (B). You'll find the originals in the *WOOD PATTERNS*® insert. Use spray adhesive to attach them to appropriate lengths of 1½"-thick cedar.

2 Parts A and B both share the same curved top profile and nose shape. Make the cuts for the front seat slat notch before you saw the curved contours on these pieces. To do this, stand each piece on end, and use a miter gauge and backing board to make the initial cut, *Photo A*. Use the rip fence to help guide this cut. Move the rip fence for the second cut and adjust the blade to 90°, *Photo B*.

3 Next, use a bandsaw or jigsaw to cut the curved contours in parts A and B. Cut in the waste area, then sand to the outline on each piece. Finally, drill the ⅜" holes for the carriage bolts.

Cut the other frame members

1 Cut the front legs (C) to size, and drill the required bolt and screw holes in each. (See the Parts View drawing in the insert.) Also cut the armrest supports (D); these attach to the front legs. Then glue and screw the supports in place.

2 Cut the 2×6 blank for the front rail (E), and bend a ⅛" thick piece of metal or hardboard to trace the arc along its face, *Photo C* on *page* XX. Bandsaw and sand to the line. Finally, drill countersunk holes for the eight mounting screws.

3 Again using the Parts View drawing as a guide, lay out the contours for the rear crossmember (F) and the seat back support (G) on 2×6 stock. Then cut and sand the curves. Drill holes for the carriage bolts and wood screws in the rear crossmember, but leave the seat back support intact.

4 Next, you'll need a pair of end wedges (H) and one center wedge (I) that mount on the seat back support (see the Parts drawing). Use a bandsaw to cut the wedges to shape, then glue them in place.

5 To locate and drill the bolt holes in the seat back support, we used a simple guide block that hooks over the end wedges. (See the Drilling the Armrest Hole detail and Guide Block drawing in the insert.)

6 Cut the table frame uprights (J) and table frame cross rails (K) for the center table, and drill the bolt and screw holes. (See the Center Table Exploded View and Parts View drawings.)

7 Cut the two cleats (L), drill the screw holes, and screw them to the inside face of the front rail. (See the Section View drawing.)

Continued

A terrific wood for outdoor-projects

Builder's Tips

For a stronger finished project, choose wider and longer boards than you need so you can work around the knots that are typical of this species.

4/4 cedar usually comes ⅞" thick, which gives you a chance to clean up the boards to ¾" and remove surface mars.

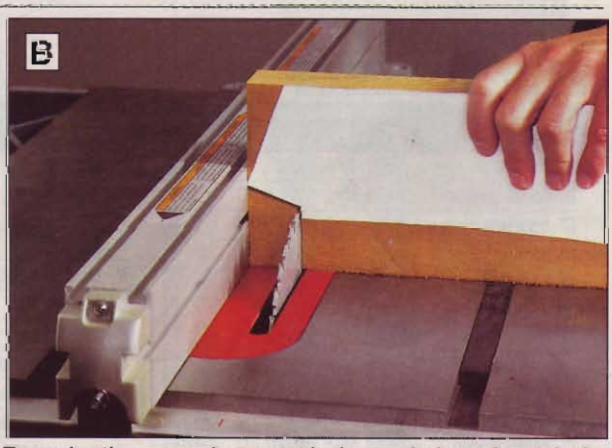
Because this weather-tough wood is fairly lightweight as softwoods go, using it results in a project that is easy to move around.

And because it is soft, be careful that you don't overtighten screws, you can bury the heads in the wood easily.

Chuck Hedlund
WOOD magazine's Project Builder

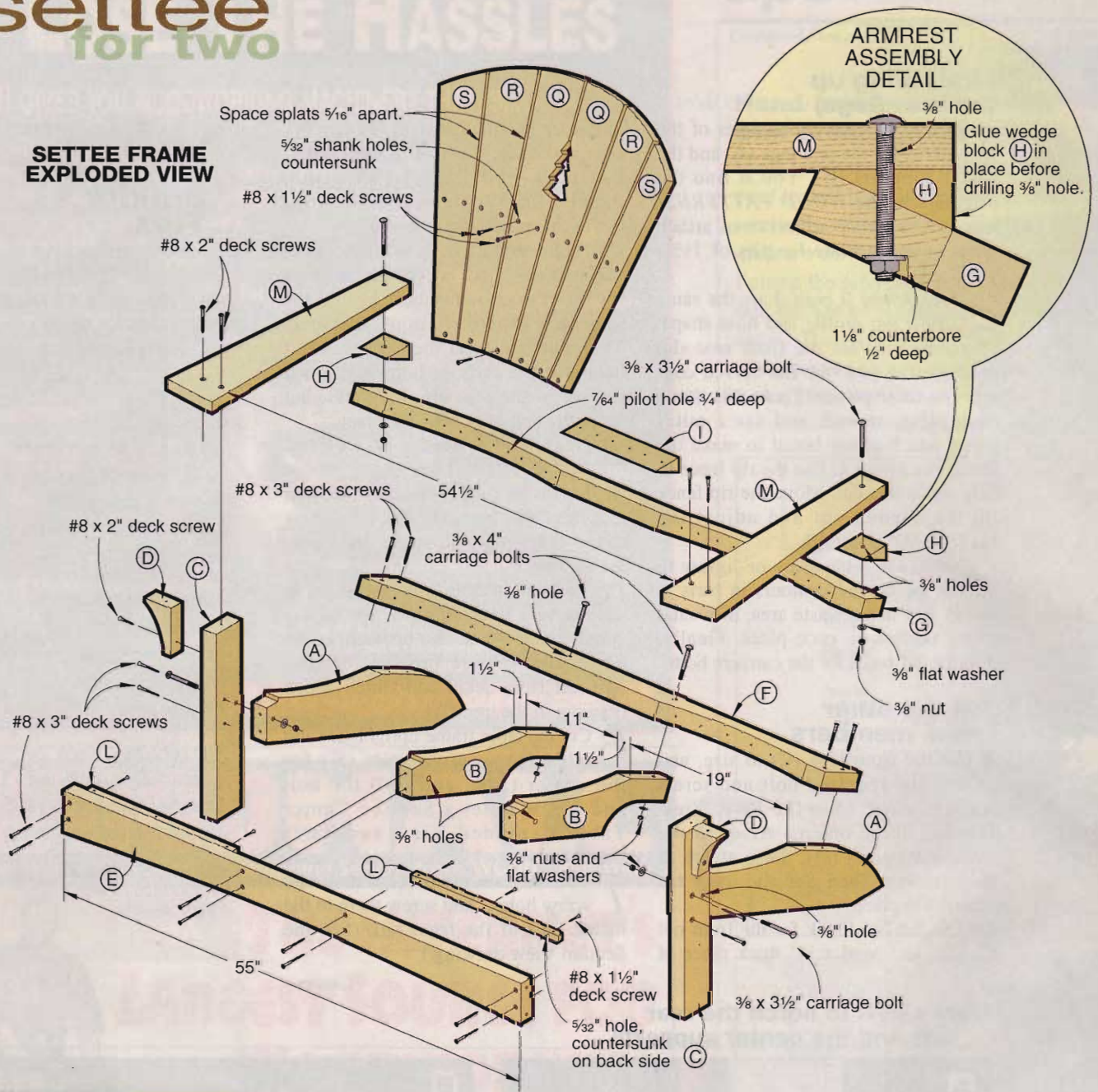
Here's how to notch the rear legs and the center supports

With the pattern adhered to the leg blanks, cut the notched ends first. Note support fence and clamp used.



To make the second cut, push the workpiece through the set up as shown. Stop the saw and remove the waste.

settee for two



BILL OF MATERIALS

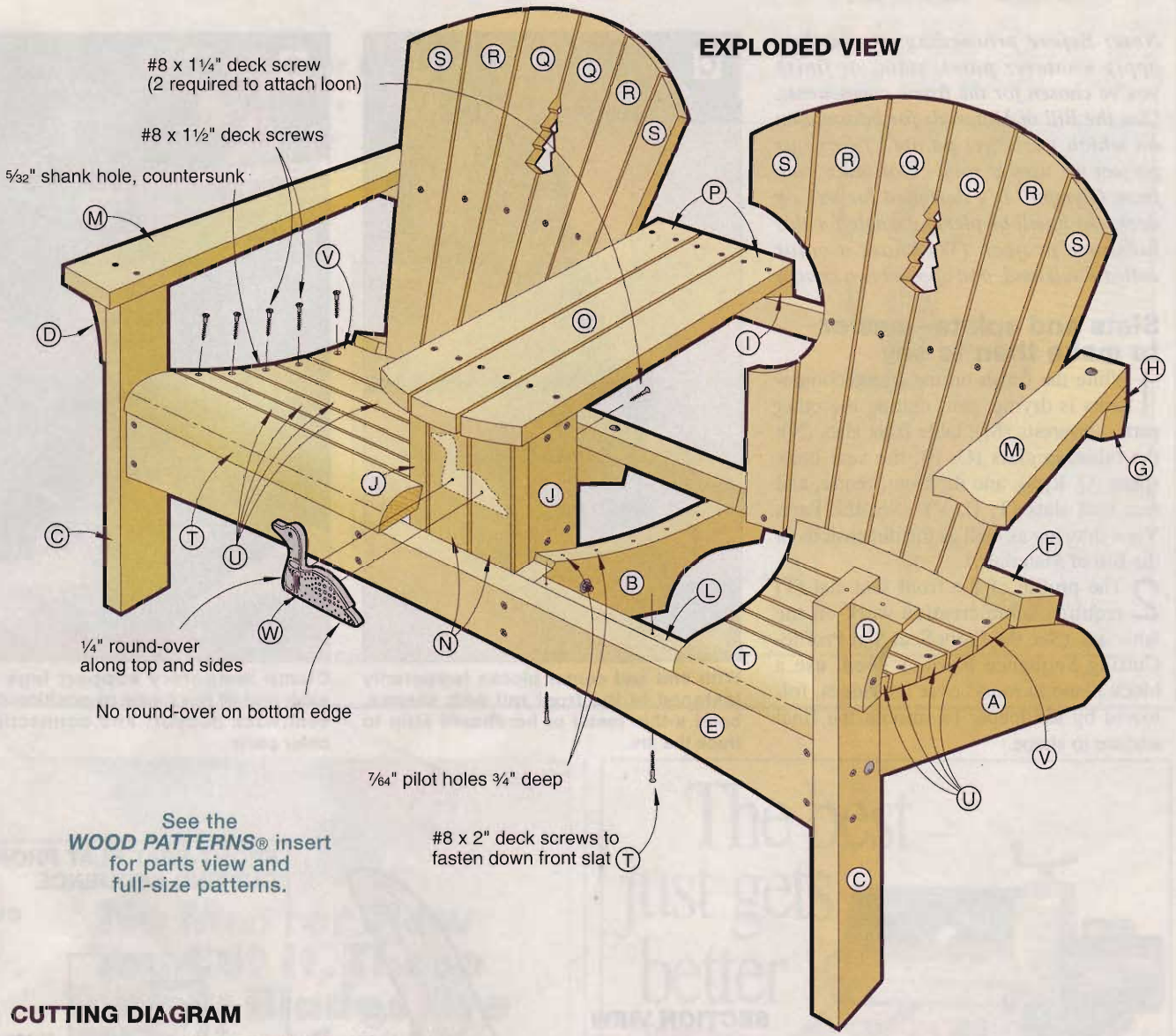
Part		finished size T	W	L	Matl.	Qty.
A*	rear legs	1½"	5⅝"	30⅞"	C	2
B*	center supports	1½"	5⅛"	23"	C	2
C*	front legs	1½"	3½"	19¾"	C	2
D*	armrest supports	1½"	3"	5"	C	2
E*	front rail	1½"	5"	55"	C	1
F*	rear crossmember	1½"	5½"	55"	C	1
G*	seat back support	1½"	5½"	61½"	C	1
H*	end wedges	1½"	3½"	3½"	C	2
I*	center wedge	1½"	3½"	11⅜"	C	1
J*	table frame uprights	1½"	3½"	12½"	C	2
K*	table frame cross rails	1½"	2¾"	8"	C	2
L	cleats	⅞"	⅞"	19"	C	2
M	armrests	1 1/16"	5½"	28"	C	2
N	table front slat	¾"	3⅝"	9¼"	C	2
O	tabletop slat	1 1/16"	3⅝"	27"	C	1
P	tabletop slats	1 1/16"	3⅝"	25⅞"	C	2
Q	seat back splats	¾"	4 7/16"	25¼"	C	4
R	seat back splats	¾"	4 5/16"	25 11/16"	C	4
S	seat back splats	¾"	4"	24⅛"	C	4
T	front seat slat	1½"	3½"	55"	C	1
U	center seat slats	¾"	2½"	22"	C	8
V	rear seat slats	¾"	5¼"	22"	C	2
W	loon blank	½"	4"	8"	C	1

Note: Parts labeled with an * get painted.

Material Key: C–cedar.

Supplies: 1¼" deck screws (2), 1½" deck screws (62), 2" deck screws (32), 3" deck screws (24), ⅜x3½" carriage bolts with nuts and flat washers (6), ⅜x4" carriage bolts with nuts and flat washers (2), paint, water repellent finish.

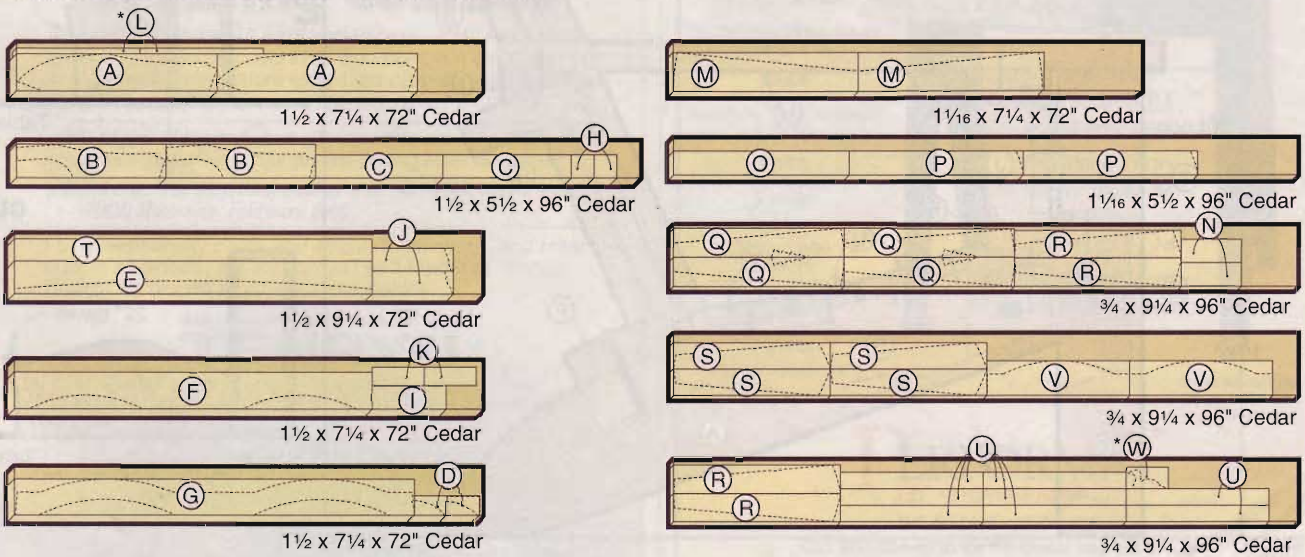
EXPLODED VIEW


#8 x 1¼" deck screw
(2 required to attach loon)
#8 x 1½" deck screws
5⁄32" shank hole, countersunk
¼" round-over
along top and sides
No round-over on bottom edge
7⁄64" pilot holes ¾" deep
#8 x 2" deck screws to
fasten down front slat T

See the *WOOD PATTERNS*® insert for parts view and full-size patterns.

CUTTING DIAGRAM

*Plane or resaw to thickness listed in the Bill of Materials.



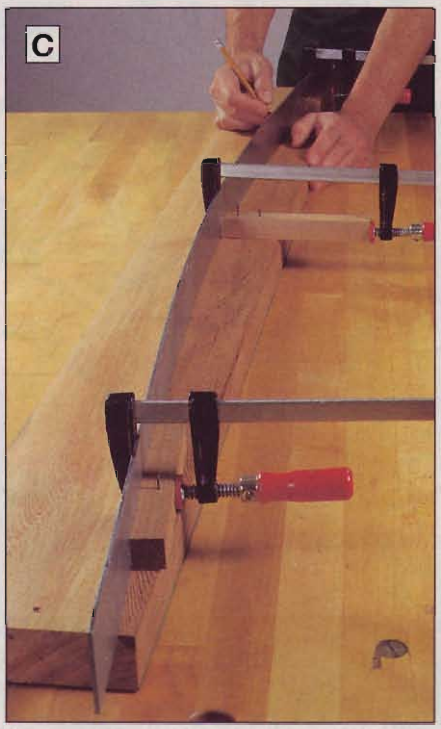
settee for two

Note: Before proceeding any further, apply whatever paint, stain, or finish you've chosen for the frame components. (See the Bill of Materials for information on which parts get painted.) For our project we used a solid-color latex stain from Olympic. It's designed for use on decks, so it will be plenty durable for this furniture project. (We chose a color called Faulkland, and applied two coats.)

Slats and splats—easier to make than to say

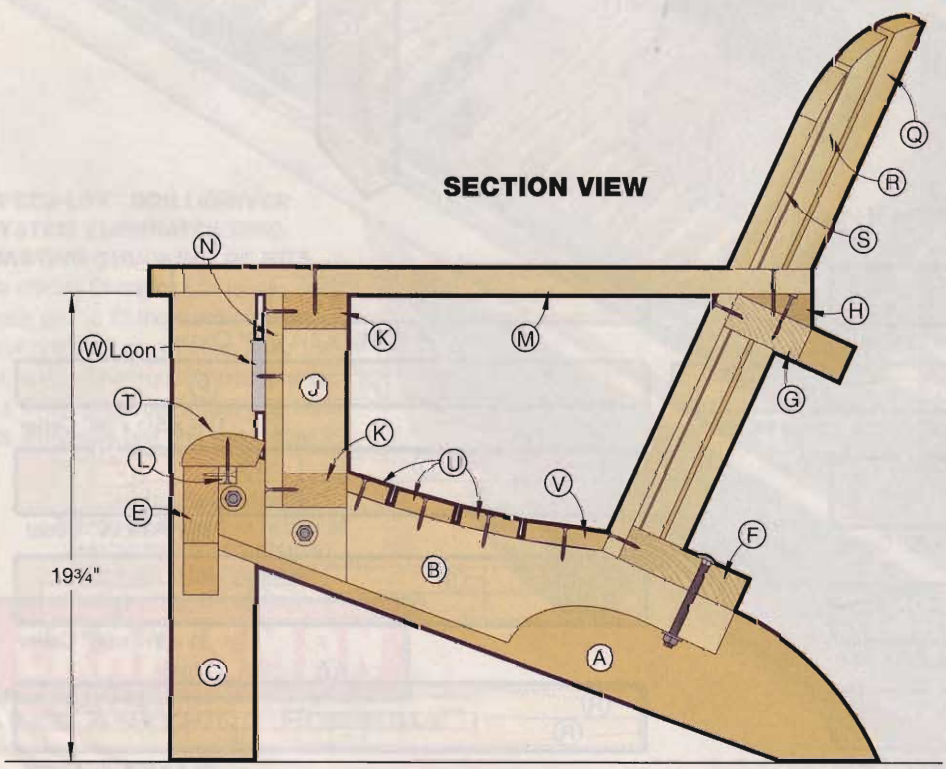
1 While the finish on the frame components is drying, start cutting the other parts—armrests (M); table front slats (N); the tabletop slats (O, P); the seat back splats (Q, R, S); and the front, center, and rear seat slats (T, U, V). (See the Parts View drawing as well as the dimensions in the Bill of Materials.)

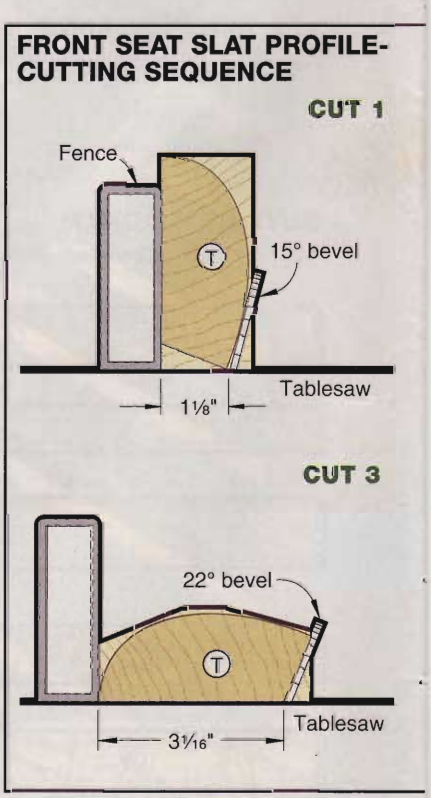
2 The profile of the front seat slat (T) requires some creative work on the tablesaw. (See the Front Seat Slat Profile-Cutting Sequence *below*.) Then, use a block plane to round over the ridges, followed by sandpaper to smooth the final surface to shape.



With end and center blocks temporarily fastened to the front rail with screws, bend a thin metal or hardboard strip to trace the arc.

Clamp temporary support legs at each end of the frame to position the seat back support and connecting chair parts.





3 Apply finish to all of the unpainted parts after they are cut to size, sanded, and drilled for screws.

Note: *We used Wolman Raincoat® Water Repellent (in Cedartone) for added protection for these parts. It mimics a clear finish, but actually adds a more uniform color.*

Assemble a solid lower frame

1 Start the frame assembly by bolting the rear legs (A) to the front legs (C).

2 Use #8×3" deck screws to fasten the front rail (E) and the rear crossmember (F) to the leg assemblies.

3 Bolt and screw the center supports (B) in place as shown in the Settee Frame Exploded View.

4 Attach the cleats (L) to the inside face of the front rail, flush with the top edge. (See Section View drawing.)

5 Assemble the center table frame (J, K), and make sure it fits in between the center supports (B). Then, fasten the table front slats (N), and bolt the unit in place. We used ⅜x3½" carriage bolts.

6 Cut a pair of temporary support legs (each 19¾" long) from a 2×6, and two short spacer blocks each 3¼" wide. Clamp the spacer blocks and support legs to the rear legs; then clamp the seat back support to the temporary support legs, flush at the top, *Photo D.* This will position the rail correctly while you install the armrests, the table slats, and the seat splats.

Install the seat components

1 Then, working from the bottom side of the seat back support, drill up through the ⅜" holes you drilled earlier and on through the armrests. Secure each armrest with a ⅜×3½" carriage bolt. (See the Settee Frame Exploded View drawing.) Fasten the armrests to the front legs with 2" deck screws.

2 Attach the tabletop slats (O, P) with 2" deck screws. Use ¼" shims to space these boards.

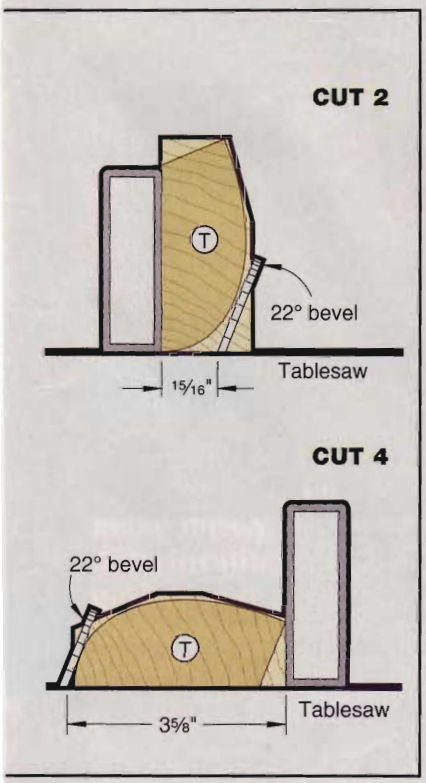
3 Next, clamp a scrap board to the underside of the rear crossmember (F), and arrange the seat back splats (Q, R, S) in place, working from the center out. Place 5/16" shims in between the splats, and fasten the splats with #8×1½" deck screws. When they're secured, you can remove the clamps and support boards, including the temporary support legs.

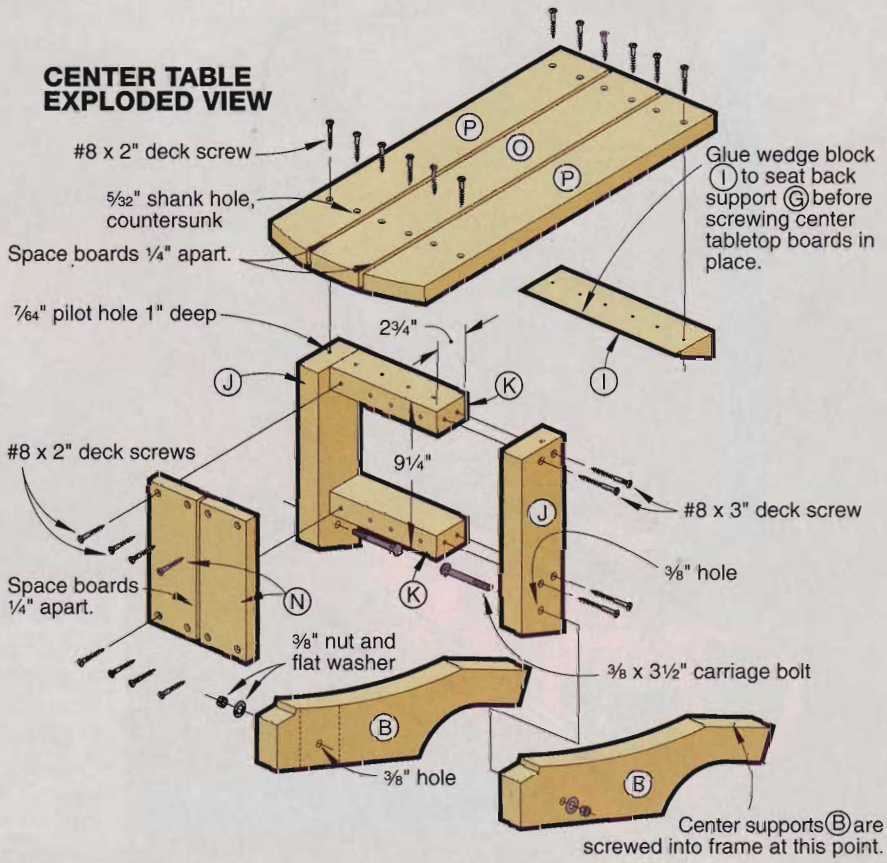
4 Fasten the front (full-length) seat slat (T), driving 2" screws up through the cleats (L).

5 Next, arrange the center seat slats (U) and the rear seat slats (V) on the rear legs and center supports. After positioning the slats for uniform spacing between them (about ⅜"), fasten them with #8×1½" deck screws. Now, do one final check to make sure all the bolts are tight, and the settee will be ready for your patio or deck.

If you'd like to add the loon to the front face of the center table, see the notes on the full-size pattern in the *WOOD PATTERNS®* insert. Center and fasten the loon to the center table front ½" above (T) with #8×1¼" deck screws driven from behind.

Project design: **James Downing**
Photographs: **Baldwin Photography**
Illustrations: **Kim Downing; Lorna Johnson**





sawmill showdown

We field-test five affordable (and transportable) machines

FAST FACTS

- Even lower-priced sawmills do a good job of sawing lumber.
- The mills we tested were transportable, but in different ways.
- Owning a sawmill can be an economical way to obtain less-expensive wood if you saw enough.

Over the years, many *WOOD*® magazine readers have told us that they'd like to saw their own stock. So we rounded up five sawmills from their manufacturers and ran them through their paces to learn firsthand just what's all involved in operating one.

Can a sawmill pay off?

Buying a transportable sawmill requires a sizable financial investment and time commitment. Three of the machines we tested carried price tags around $5,000; the other two were double that.

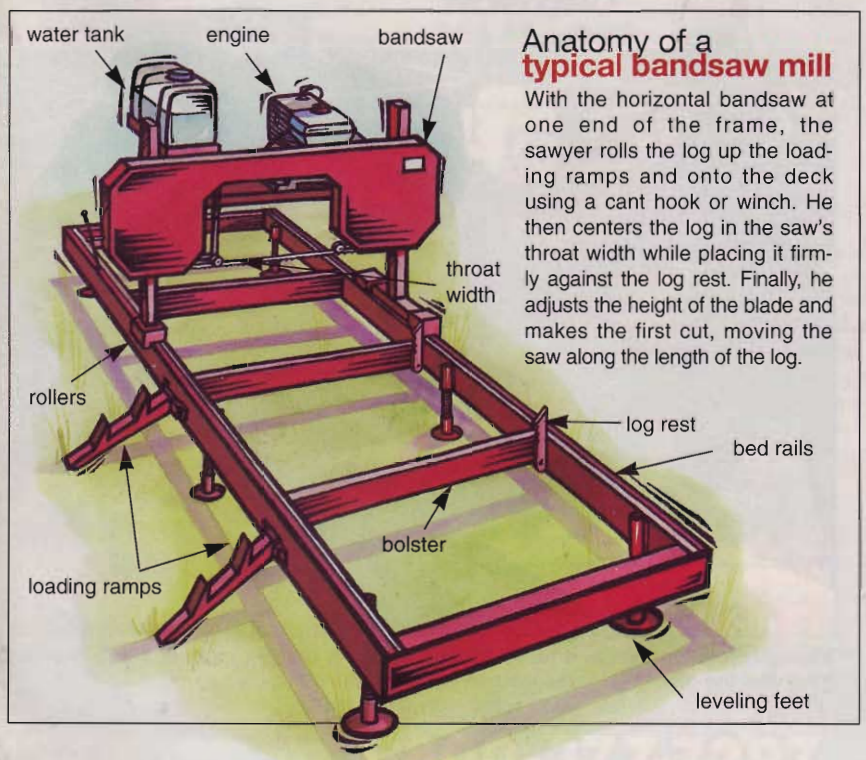
Despite these prices, we believe that a sawmill can be a profitable tool. Our quick calculation suggests that two modest days of custom sawing per month (1,600 board feet × .20 per board foot = $320) should cover the average monthly payments over the length of a loan on one of the lower-priced machines.

Being able to obtain wood species not commonly available draws many woodworkers into the sawyer role. Owning a mill also can help you get consistently better grades of wood for furniture and other projects. And with a mill, you'll find yourself cutting logs for quartersawn and riftsawn boards that you can't get elsewhere except at high cost. Besides all those rewards, it's flat-out fun!

What to consider before buying

Because sawmills cost a bunch, you'll need to dispense with a few major issues before you start shopping.

- Do you have enough access to trees? If you don't have a woodlot to supply you with logs, can you find enough sources? Check tree services and construction companies that clear land.
- Fortunately, these sawmills are transportable. You can take them to the logging site. But do you have a enough space to do sawing on your property if need be? And what about noise ordinances and neighbors?
- Do you have secure indoor storage available for the machine? You'll need to protect it from foul weather, theft, and vandalism.
- Where will you stack and store the wood? You can air-dry your green boards outside, but after that the material must be stored properly—preferrably indoors—to keep it in top condition. And that becomes more of a factor if you have wood kiln-dried.



Anatomy of a typical bandsaw mill

With the horizontal bandsaw at one end of the frame, the sawyer rolls the log up the loading ramps and onto the deck using a cant hook or winch. He then centers the log in the saw's throat width while placing it firmly against the log rest. Finally, he adjusts the height of the blade and makes the first cut, moving the saw along the length of the log.

A quick look at the less-expensive sawmills

Of the five sawmills that we tested, three were bandsaw mills (Norwood Lumbermate Mark 4, TimberKing 1200, and Wood-Mizer LT15) and carried prices in the $5,000 range. By the time those three units were blocked and leveled, the working height from ground to bed averaged about 9". We quickly found that the lower a mill sits to the ground, the better, especially if you're loading logs without help from other equipment.

With the above three sawmills (all bandsaw mills), we loaded and turned the logs manually using cant hooks. Loading ramps come standard on the TimberKing, optional on the Wood-Mizer, and aren't available at all for the Norwood.

If you plan to move your mill from site to site, you'll want a transport package. TimberKing and Norwood offer optional trailer packages. All three of the less-costly bandsaw mills offer optional bed extensions that add additional length for sawing long logs.

The mills differ in the size of logs they can saw. The specifications chart on *page 82* shows these values for standard configurations. In some instances you can saw a log larger than the stated diameter by repeatedly sawing and turning it. We successfully worked a 40"-diameter oak log on a machine with a 32" stated capacity.

Two pricey machines

We also tested two mills in the $10,000 price range—the Wood-Mizer LT25 and the Lucas Model 6. While four of our test units were bandsaw mills, the Lucas mill employed a circular saw blade. And with its circular blade, the Lucas can start cutting dimensioned boards out of a log in just two passes. With a bandsaw mill, you can only do this after you have squared the log into a cant by slabbing off the bark or wane, as the operator is doing in the photo *opposite page*.

Continued

A closer look—the sawmills' pros and cons

Norwood Lumbermate Mark 4

The Norwood Lumbermate must be pushed and pulled manually through the log during the sawing operation. The sawmill ships unassembled.

This bandsaw mill has features the other two mills don't that really made it fun to operate. We liked the torsion spring/cable system for lowering and raising the saw head. It was faster and easier to operate than the winches used on the other machines. (See inset *left.*)

You've probably heard pros and cons about having to push and pull the blade through the log. Based on our experience with the Norwood, we found this faster than the winch systems employed by the other bandsaw mills. On the Norwood, all the necessary controls are located on the same side, making them easy to reach and operate. We also appreciated that the sawdust and the engine exhaust exits the side opposite the operator and is directed away.

Inset: **A torsion spring/cable system lowers and raises the saw head on the Norwood, making it faster and easier to operate than the winches on the others. And all of the necessary controls are located on the same side, making them easy to reach and operate.**

TimberKing 1200

The welded bed on this mill proved to be very strong and rigid. Loading ramps and a cant hook come standard, and handled most log loading.

We got along pretty well with the transport package, too. To remove the axles, you lift and support the bed with the four screw jacks. We also liked the idea that the leveling screws were standard equipment on the TimberKing.

TimberKing's basic 12'-long log capacity should be adequate for anyone wanting to cut cabinet-grade material or trim stock. Its 28½" throat also enables it to cut a wider slab than the Norwood.

We downgraded the TimberKing, though, because its feed winch operates full time, making for slow carriage return. And the depth scale on this saw doesn't warn you when the blade may contact the log rest or log dogs. The

Manually loading logs and turning cants was part of the experience with the TimberKing 1200 and the other two lesser-priced bandsaw mills.

The Norwood uses a centrifugal clutch so the blade only runs when the engine has been powered up. This setup does take longer to stop the blade than on the other mills.

Of the three lesser-priced mills, the Norwood has the smallest throat opening. This limits the size of the quarter that can be quartersawn to 19".

We were disappointed that the bed-leveling gear on the Norwood was not included as standard equipment as with the other bandsaw mills. We also think loading ramps should be available; they're not even an option.

The Norwood arrived on a pallet, unassembled. It took about 20 hours to assemble the machine. However, once you've assembled it, you'll know exactly where every piece goes, what it does, and how to later adjust it.

The Norwood uses a 1¼"-wide, 148"-long blade. It costs $26.50 (OEM) compared to $18.50 for the blades used on the other bandsaw mills.

sheet-metal depth indicator was harder to read than the plastic hairline indicators of the other mills, and we missed not having a blade-tension indicator.

While operating the saw, we discovered the separate throttle and clutch controls were more troublesome to use than the integrated system on the Wood-Mizer. We also found the guide adjustment more difficult to reach and operate compared to the others.

The one-piece blade guards, attached with threaded knobs, were a bit time-consuming to remove when changing blades. The small water tank also required more frequent filling than those on the other machines.

Blade-guide bearings are sealed but not enclosed like those on the Wood-Mizer. The infeed-side bearings did lock up from sawdust and debris.

Wood-Mizer LT15

We liked the LT15's strong, one-piece welded log deck and log rests. The closer center bolster and log rest spacing also allow logs shorter than 4' to be worked safely.

The winch-feed system functioned smoothly, and it disengages for a much faster head return. The combined head-raising/lowering and feed-winch handle also simplifies machine control. The large throat allows cuts on cants up to 23" wide.

The LT15 uses the same saw blades as its bigger brothers, so they're readily available. Blade changing was fast and simple, and the blade-tension indicator performed admirably.

An electric starter comes as standard equipment on this model and proved to be convenient. However, there's no way to start the engine should the battery or starter fail. We also liked the combined throttle/clutch control. An integrated brake quickly stops the blade.

Raising and lowering the head on the LT15 mill was much slower than on the Norwood. Because of this factor, quarter-sawing was slow, too.

You can't buy a trailer package for the LT15. To transport this 826-pound unit means loading it onto a pickup or trailer.

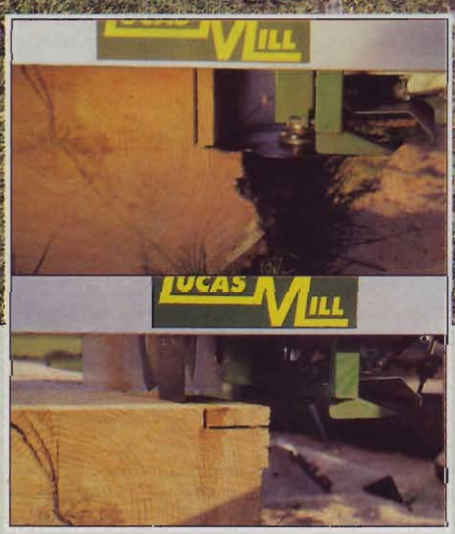
The log ramps, although effective, are optional. We felt the short log dogs were harder to use than those on the two other mills we tried.

The sawdust exits at the operator's feet, and forces you to constantly walk in it. This became more than a bit annoying after a few hours of sawing.

With the Wood-Mizer LT15, as with all bandsaw mills, you must first square the log into a cant before you can saw boards.

Continued

The expensive machines in our roundup



Above: **The Lucas Mill can be carried and set up almost anywhere by one man in less than 30 minutes. The log does not have to be moved—just wedged or blocked.**

Left: **The unique head design of the Lucas Mill enables the circular blade to cut in horizontal and vertical position. The head floats on an aluminum frame.**

Lucas Mill Model 6

We doubt you'll find a more transportable sawmill than this one. Its aluminum frame breaks down into 11 pieces, with the heaviest weighing less than 100 pounds. You can carry it to the log, even in heavy timber and underbrush, or to difficult terrain where other mills cannot be hauled or towed. The power head/carriage unit rolls on two wheels, much like a garden-variety two-wheel wheelbarrow.

One man easily can set up the mill and start sawing in less than 30 minutes. The log does not have to be moved—just wedged or blocked to keep it from rolling over.

The saw's unique design allows the blade to operate both horizontally and vertically. To saw, you push the head carriage along the guide rails parallel to the log. At the end, swing the blade 90°, then pull the saw back along the log to complete the cut and free the board, as shown in the photographs *below left.*

The Model 6 has a 6¼" cutting width limit. However, by manually turning the saw head 180°, it can make a double-width cut about 12" wide (17" on Model 8). The manufacturer does offer an optional slabbing attachment for cutting boards up to 7×50" boards.

Quarter-sawing with the Lucas was a breeze. With a little practice, you can produce close to 100% quartersawn material from almost any log.

The 17"-diameter, five-tooth carbide-tipped blade stays sharp longer than bandsaw blades, especially if sawing dense woods or dirty logs. A new blade currently costs $95. Blade repair, including replacement of the five tips, cost us $20, about the price of a new bandsaw blade.

Sawing through-and-through on a bandsaw mill inevitably yields more lumber because it cuts a narrower kerf (⅛" compared to 3/16" with the circular blade). For example, flat-sawing 1"-thick slabs from a 16" cant with a band blade should yield one more slab than will the circular blade. A band blade also leaves a bit smoother surface.

Wood-Mizer LT25

In one glance, you'll see a machine with more features and stronger construction than found on the other transportable bandsaw mills we tested. Depending on how the LT25 has been outfitted, it will weigh-in at between 2,000 and 2,500 pounds. So moving it will require the optional—and complete—trailer package, which costs about $1,000.

We liked setting up the LT25. The standard leveling legs are easy to use, and the adjusting bar stows onboard. The log loading ramps also stow onboard when not in use.

Our test unit came with an optional deck-upgrade package that includes a manual winch for log loading and for turning the logs on the bed. Front and rear screw-type toe boards that level tapered logs also came as part of this upgrade. The winch makes log loading and rotating considerably easier and much safer.

The LT25's standard 16⅞×32" throat enables cant cuts up to 28" wide. The log-clamping system permits cuts to within 1" of the bed.

Oil-bath drive-wheel bearings and large idle-wheel bearings indicate that the mill has been designed for heavy-duty or continuous operation. We found that the hydraulic blade-tension system applies greater tension easier than the manual systems found on the smaller mills. A gauge gives a direct readout of blade tension.

Raising and lowering the head was slow and got irritating when quarter-sawing, though. Even cranking the head back to the top after finishing a log became bothersome.

We really dislike the amount of sawdust the operator has to breathe and wade in, too. Most of the time while sawing the dust chute sits between the operator's head and waist. This creates a virtual blizzard of sawdust, with no option but to walk in it. We alleviated the problem somewhat by setting up the mill with the wind at our back.

An optional log roller on the Wood-Mizer LT-25 makes turning the log a simple, effortless task.

The manual winch (part of an optional package) on the Wood-Mizer LT25 makes loading of even large logs onto the saw bed easy and safe.

Continued

sawmill showdown

After sawing, here are our thoughts

Comparing the small sawmills, we find it tough to choose between the Norwood and the Wood-Mizer LT15. Based on our experiences, we think you'd be happy with either machine.

In choosing between the two expensive machines, we feel that it primarily depends on what operating features appeal most to you.

If you need something highly flexible, mobile, and easy to set up, the Lucas wins hands down. But if you want a super-rugged bandsaw mill the Wood-Mizer LT25 more than fills the bill for sawing logs into lumber.

Sources for mills tested

Lucas (Bailey's)
800/322-4539
www.baileys-online.com

TimberKing
800/942-4406
www.timberking.com

Norwood
800/567-0404
www.norwoodindustries.com

Wood-Mizer
800/553-0182
www.woodmizer.com

Other Sawmills Not Tested

American
888/778-0014

Linn
541/367-6900

Baker
573/663-3133

Log-Master
800/820-9515

Bizzy Beaver
405/944-5100

Mighty Mite
503/288-5923

Cook's
800/473-4804

RipSaw
978/657-5636

Cutting Edge
888/222-6171

T.A. Schmid
888/858-8589

Enercraft
877/527-1100

Thomas
207/722-3505

Hud-son
800/765-7297

Timber Harvester
800/343-2969

Kasco
800/458-9129

Timberwolf
888/419-0558

Let us hear from you

Have you tried any one of the sawmills in our review? If so, let other readers know about your experience and whether or not it matches up with our review by commenting on our WOOD MALL™ website at www.woodmall.com. Click on the "Interactive Tool Reviews" button to discuss these sawmills with the manufacturers and other *WOOD®* magazine readers.

SAWMILL SPECIFICATIONS

	LUCAS 6	NORWOOD	TIMBERKING 1200	WOOD-MIZER LT15	WOOD-MIZER LT25
TYPE	Circular	Band	Band	Band	Band
TOWABLE	No	Yes (optional)	Yes (optional)	No	Yes (optional)
HEAD ELEVATION	End Winches	Torsion Spring	Winch	Winch	Winch
HEAD LOCK	N/A	Yes	Yes - Disk Brake*	Yes*	Yes*
CARRIAGE CONSTRUCTION	Aluminum Tube	Four-Post Cant	Four-Post	Two-Post Cant	Cantilevered
OVERALL WIDTH	84"	68"	80"	6' 3"	6' 6"
FRAME CONSTRUCTION	Aluminum Beams	Debossed Beam	Steel Tube	Steel Tube	Steel Tube
TRACK TYPE	Aluminum Beams	Angle Iron	Box Tube	Steel Bar	Single Beam
LEVELING TYPE	Post Winch	Jack Screws (Optional)	Jack Screws	Jack Screws	Stiff Legs
NUMBER OF LEVELERS	2	Optional	6	8	4
HEIGHT FROM GROUND	N/A	8"	9"	9"	30 1/2"
CARRIAGE DRIVE	Push/Pull	Push/Pull	Winch	Winch	Winch
NUMBER OF LOG DOGS	NR	1	3	2	1
NUMBER OF LOG RESTS	NR	2	3	4	4
ENGINE HORSEPOWER	18 hp Gas	13 hp Gas	15 hp Gas	15 hp Gas	20 hp Gas
ELECTRIC START	Yes	Yes (Optional)	Yes	Yes	Yes
CLUTCH TYPE	Centrifugal	Centrifugal	Electromagnetic	Mechanical	Mechanical (Belt)
BLADE BRAKE	Yes (Emergency)	No	Yes	Yes	Yes
BLADE TENSION TYPE	NR	Spring	Screw	Poly Spring	Hydraulic
TENSION INDICATOR	N/A	Yes	No	Yes	Yes
LOADING RAMPS	N/A	No	Yes	Yes (Optional)	Yes
MAXIMUM LOG DIAMETER	54"	27"	29"	28"	32"
MAXIMUM LOG LENGTH	20'	13'	12' 4"	11'	16' 8"
THROAT OPENING	N/A	19 3/4"	28 1/2"	26"	28 1/2"
THROAT HEIGHT	N/A	7 1/2" (bolt)	16"	10 1/2"	15"
MAXIMUM DECK TO BLADE	N/A	23"	25 1/4"	27"	35"
MAXIMUM SLAB THICKNESS x WIDTH	6 1/4 x 12 1/2"	7 1/2 x 19 3/4"	16 x 22"	9 1/2 x 22"	15 x 26"
MAXIMUM SLAB 8/4 WIDTH	12 1/2"	19 3/4"	28 1/2"	26"	28 1/2"
BLADE SIZE WIDTH x LENGTH / DIAMETER	3/16 x 17"	1 1/4 x 144"	1 1/4 x 158"	1 1/4 x 158"	1 1/4 x 158"
BLADE COST OEM	$ 94.95	$ 26.50	$ 18.50	$ 18.50	$ 18.50

PERFORMANCE EVALUATION

EASE OF RAISING HEAD	G	E	F	F	F
EASE OF ASSEMBLY	E	G	E	E	E
EASE OF MOVING GUIDES	N/A	E	F	E	E
EASE OF LOADING 20" LOG	E	F	G	E	E
EASE OF LOG DOGS	N/A	G	F	F	E
EASE OF BLADE TENSION	NR	E	G	E	E
EASE OF BLADE CHANGE	G	E	F	E	G
BLADE CHANGE TIME	10 Minutes	4 Minutes	8 Minutes	4 Minutes	6 Minutes
WATER DRIP CONTROL	G	G	G	E	E

E Excellent G Good F Fair * Locks winch only N/A = Not applicable NR = Not required

Written by **Charles Sommers** with **Dave Henderson**
Photographs: **Baldwin Photography** Illustration: **Brian Jensen**

Have a question?

If you're looking for an answer to a question that you think would interest lots of other readers, write to:

Ask *WOOD*®, 1716 Locust St., GA310, Des Moines, IA 50309-3023.

For an immediate answer to your question, get help from fellow woodworkers by posting it on one of our internet discussion groups at:

www.woodmagazine.com

Kiln- vs. air-drying wood

Q **Last spring I had some hickory sawed into 4/4 lumber, and last fall I did the same with some cherry, beech, maple, and ash. How long will this wood take to air-dry? The ends are painted to inhibit checking. It is all stickered and stacked in a dry barn. Some articles I've read seem to say it will air-dry in about a year; others say I will need to kiln-dry it to reduce the moisture content from around 20% to the recommended 6%. My shop is located in northeastern Indiana, and our weather is usually humid. Also, has anyone tried building a small solar kiln and had good results with it? If so, where could I get plans?**

—bsmurr@yahoo.com

A Let's answer your second question first, Steve. In issue 70 of *WOOD* magazine, we featured a solar kiln, shown on pages 44-46, based on a design concept originally created by University of Wisconsin Extension forester Eugene Wengert. We loaded it with 614 board feet of ash, cherry, and walnut, and checked back about six weeks later. It worked like a charm, bringing the woods' moisture content down to a bone-dry 6%, as reported in issue 74, page 48. And yes, you can get plans for it. Send your check or money order for $9.95 ppd. (U.S.) to Kiln Plans, *WOOD* magazine, 1716 Locust Street, GA310, Des Moines, IA 50309-3023.

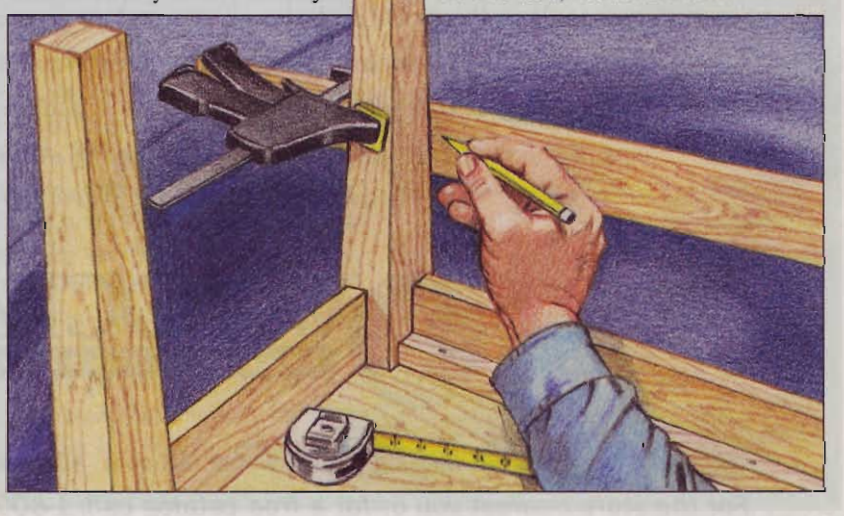
Now back to your first question. Unless you live in a desert, we doubt that you can ever air-dry green wood down to 6-8% moisture content, the preferred dryness for stock destined to become furniture or other indoor projects. That's because the average humidity for most of the U.S. hovers at about 65%—equivalent to 12% moisture content in a board. But, indoor humidity runs a lot less, so projects for use there should be built from kiln-dried stock in the lower moisture-content range to avoid wood movement. (For outdoor projects, the wood with a higher moisture content is okay.)

What's the best way to figure angles for tenon shoulders?

Q **I'm building a project with tapered legs and don't know how to compute the angle to which I should set my miter gauge to correctly mark the shoulders for tenons for the bottom rails. The taper is 13" long, starts at 2x2" and tapers to 1x1". Is there a formula that can determine this angle?**

Robert Broome, Terrace, B.C., Canada

A There is a formula, Bob, and if we did our math correctly, the answer is 4.3987 degrees. The correct answer? Yes. The best solution? We don't think so, and here's why: (A) You could goof up a complicated geometric/algebraic calculation, and (B) the result will be all but impossible to calibrate accurately. Far better, in our opinion, is to throw out the math and mark your cuts directly. Cut the stretcher piece longer than required, clamp it in place on the dry-fit legs, and mark the shoulders directly on the stretcher, as shown *below*.



Continued on page 86

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Continued from page 84

How to successfully scrollsaw plastic?

Q I'm trying to cut acrylic plastic on my scrollsaw, with very disappointing results. At high speed it just melts; at low speed the plastic chips badly. Can you help?

Glen Roach (glenr@nbnet.nb.ca)

A *WOOD*® scrollsaw specialist Rick Hutcheson recommends using packaging or masking tape on the top and bottom of the cut or leaving the paper covering on the plastic until you've cut it. Saw at a low speed, using a blade with only a few teeth per inch. Even with these precautions, "some types of plastic just won't cut right," Rick says. For more about cutting plastic, check out Rick's web site at http://www.scroll-saws.com.

Power-sawing compound miters

Q For many years I've cut crown molding using the "upside-down" method in a miter box with a handsaw. I feel sure that this could be done with the wood lying flat on a radial-arm or compound mitersaw. Can you tell me how? I can't figure out what angle and bevel to use.

William J. Setzer, Southampton, Pa.

A No problem, Bill. Both machines can do the job. Set the miter angle at 31.62°—a positive stop on many compound mitersaws—and the bevel at 34°.

Place the bottom of the molding against the fence to cut the left piece of an outside corner, as shown. Then put the right piece with its top against the fence, again on the right side of the blade, and swing the saw to the opposite 31.62° setting.

Illustration: Jim Stevenson

American Chestnut

An ecological disaster wiped out this once-proud tree

Just a century ago, you could find specimens of the magnificent American chestnut (*Castanea dentata*) practically everywhere in the eastern part of this nation. It thrived in farmyards, town squares, and forests from southern Maine to northern Mississippi, Alabama, and into Arkansas.

These mighty trees stood 60' to 100' tall, with trunks that could measure 10' and 12' in diameter. Because the American chestnut first branched horizontally from its trunk, then fanned out with ascending branches, it was much-loved for shade.

The beginning of the end for this magnificent species came in 1904, when trees at the New York Zoological Park were stricken with a fungus disease that originated in Asia. Spread by wind-borne spores, the blight moved rapidly. Not quite as fast as a forest fire, but equally devastating—through New Jersey and into Pennsylvania's great chestnut stands, then on west. By the late 1930s the noble American chestnut was wiped out. Although the tree could send out sprouts from its stump—and did after fire or logging—they only lived for a short time before also succumbing to the blight.

People might remember the chestnut for its tasty nuts, but in its day the tree had lots of commercial uses. Its wood resembled oak. Though coarser, lighter, and weaker, chestnut better resisted wood-destroying fungi, which made it a natural for fence posts and railway ties. Chestnut also was made into furniture, interior trim, packing cases, and crates. Tannic acid, for tanning leather, was extracted from the bark and wood.

After felling, the American chestnut sprouted from the remaining stump. But it took little time for the blight to eventually kill even those valiant new sprouts.

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Circle No. 49

the art of the appraisal

How to make value judgments

A written appraisal offers one of the surest means of establishing the value of antique or high-quality collectible furniture. Here are some tips on finding and working with an appraiser.

Back in the 1930s and 1940s, Roger Epperly's dad became interested in antiques. "He wasn't really a collector," the Ankeny, Iowa, resident recalls, "but when he saw something he liked, he would buy it." Among those purchases were several pieces of Eastlake-style furniture, including the secretary at *right*. (See *The Eastlake influence* on *page 92*.)

Roger had always thought his parents' collection of Eastlake-style furniture might be valuable. When he inherited the pieces a few years ago, he figured the secretary might be worth as much as $1,500. To find out for sure, he turned to an appraiser. And he found he had guessed low.

Sometimes, price matters

Putting a value on a family heirloom is just one reason you might want an appraisal on antique or high-quality collectible furniture. "Insurance coverage is another important reason," according to Dennis Tesdell, an antique-furniture appraiser and consultant in West Des Moines, Iowa. "Without a specific fine-art appraisal on file with your insurance company, your chances of fair (or, perhaps, any) reimbursement in the event of fire, damage, or theft are slim." An appraisal also comes in handy if you donate an item to charity.

How to hire an appraiser

You'll find appraisers listed in the Yellow Pages. Look for one associated with a major professional organization for appraisers of antiques, fine art, and personal property, listed *below*. Or, call the organizations for appraisers near you.

✔American Society of Appraisers, 800/ASAVALU or 703/478-2228

✔Appraisers Association of America, 212/889-5404

✔International Society of Appraisers, 888/472-4732 or 206/241-0359

When you contact an appraiser, itemize what you want appraised and explain the reason—insurance, estate, or sale, for instance. This gives the appraiser an idea of how long the job will take, and verifies that the one you're talking to has knowledge of and experience with the artifacts you want to have valued.

Appraisals are not inexpensive. "Expect to pay from $75–250 per hour for a qualified appraiser's time in your home," Dennis says. Travel time is often extra. "Don't deal with appraisers who base their fee on a percentage of the object's value or those who offer to buy the piece at their appraised value," Dennis warns.

Here's what to expect

The appraiser will spend some time at your location inspecting the items and taking notes, perhaps even making sketches or taking photos. (You might take small things to the appraiser's office.) You won't be told a value yet, however. "Market research and pricing are always done back at the appraiser's office, where reference books and catalogs are at hand," Dennis points out.

Roger Epperly reviews the appraiser's valuation of his Eastlake secretary, which turned out to be two to three times his own estimate. The report documents the item's value for insurance.

Later, you'll receive the appraiser's report, which should include

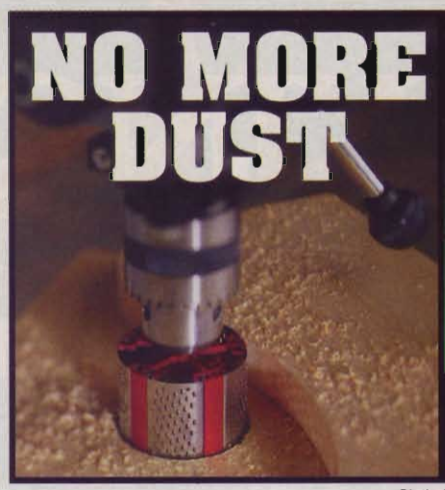
✔ a cover page, with your name and address and the date, location, and purpose of the appraisal,

✔ a statement by the appraiser that he or she has no personal or financial interest in the subject items,

✔ a summary of the appraiser's credentials and professional affiliations,

✔ a typewritten appraisal report, signed and dated by the appraiser.

Continued on page 92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Continued from page 90

the appraisal

Some appraisers will include photos of selected items, too. If not, it's a good idea to take your own photos to attach to the appraisal report.

Carved decorations help identify this secretary as an Eastlake-style piece, dating from the 1880s or 1890s.

The Eastlake influence

Englishman Charles Locke Eastlake disliked ornate Victorian furniture. Even more, he despised "speedy fashion changes," which seemed to go hand in glove with mechanized manufacturing. Around 1870, in hope of improving public taste—particularly among Americans—he espoused a style for machine-made furniture that was rooted in simple Medieval English designs. Instead of elaborate carving, he favored incised decoration based on Gothic and Oriental themes, as shown in the photo *above*.

Many American furnituremakers—seeking fashionable new temptations for the buying public—brought broad interpretations of Eastlake's ideas to the market. Often, ornamentation far exceeded the simplicity the designer envisioned. Eastlake himself never manufactured or marketed furniture, but pieces reflecting his influence are valued for representing a turning point in design philosophy.

Written by: **Larry Johnston with Dennies Tesdell**
Photographs: **Hetherington Photography**

How to prep a new block plane

Okay, you've built a great-looking block plane from the instructions on page 41. Now, you need to sharpen and set the blade before putting it to use. Here's how.

The Hock-brand blade that we sourced for use in the plane may feel sharp when it arrives, but it requires further sharpening before you can effectively shave wood with it. To do this, we recommend you use a honing guide (a wheeled carrier that holds the blade at a set angle) and a Japanese water stone or a diamond stone like the one *above right.* You can buy these items through any number of woodworking catalogs. To our pleasant surprise—and you'll appreciate this, too—the Hock blade comes with detailed, illustrated sharpening instructions written in plain English.

To properly set the blade in the plane, withdraw the wedge block and set the plane on a flat surface. Place the blade in the plane and use the flat surface to position the blade edge flush and parallel to the opening in the bottom of the plane. Slide the wedge into place to lock the blade into position. Then, lift the plane off the flat surface and give the back of the wedge block one good rap with the heel of your hand. That should be enough to make the blade just barely stick out of the plane's bottom (known as the sole). The blade should take a light cut of consistent depth. Expect to practice this blade-setting technique some.

The plane should make paper-thin shaving curls as you push it with moderate force over a workpiece. You'll find it comes in handy for general trimming and for planing end grain.

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14" x 80 T (1" hole)	~~187~~	177	168
14" x 100 T (1" hole)	~~226~~	203	192
16" x 100 T (1" hole)	~~243~~	219	206

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14" x 40 T x 1"	~~$146~~	$134	$127
14" x 30 T x 1"	~~136~~	125	118
12" x 40 T x 1"	~~126~~	116	110
12" x 30 T x 1"	~~116~~	107	101
10" x 40 T x 1/8" or 3/32"	~~116~~	107	101
10" x 30 T x 1/8" or 3/32"	~~96~~	89	84
9" x 40 T	~~106~~	98	93
9" x 30 T	~~96~~	89	84
*8 1/4" x 40 T x 3/32"	~~96~~	89	84
8" x 40 T x 3/32"	~~96~~	89	84
8" x 30 T x 3/32"	~~86~~	80	76
7 1/4" x 30 T x 3/32"	~~66~~	62	59
**6" x 40 T x 3/32"	~~86~~	80	76
***5 3/8" x 40 T x 10mm	~~86~~	80	76

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6 1/2" x 40 T Delta, Sidekick, & Others	~~$95~~	$89	$84
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8 1/2" x 60 T Hitachi, Dewalt, Ryobi, FreudTR125	~~115~~	107	101
9" x 80 T Delta & Others	~~125~~	116	110
10" x 80 T Delta, Bosch, Mitachi, Makita, Ryobi, AEG, & All	~~135~~	125	118
12" x 80 T Dewalt, Hitachi, Makita, B+D, Sears, & All	~~145~~	134	127
14" x 100 T Makita, Ryobi	~~185~~	170	161
15" x 100 T Hitachi, Ryobi	~~195~~	179	169

WOODWORKER I
7 1/4" to 14" diameter available
Designed for radial arm or tablesaws—fine crosscut.

	Sale Price	10% Off 1st Blade	15% Off 2nd Blade
8", 8 1/4", 7 1/4" x 60T	~~$109~~	$98	$93
10" x 60 T (5/8" hole)	~~129~~	116	110
12" x 60 T (5/8" or 1")	~~139~~	125	118

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10" Set	~~349~~	314	297
12" Set	~~449~~	404	382

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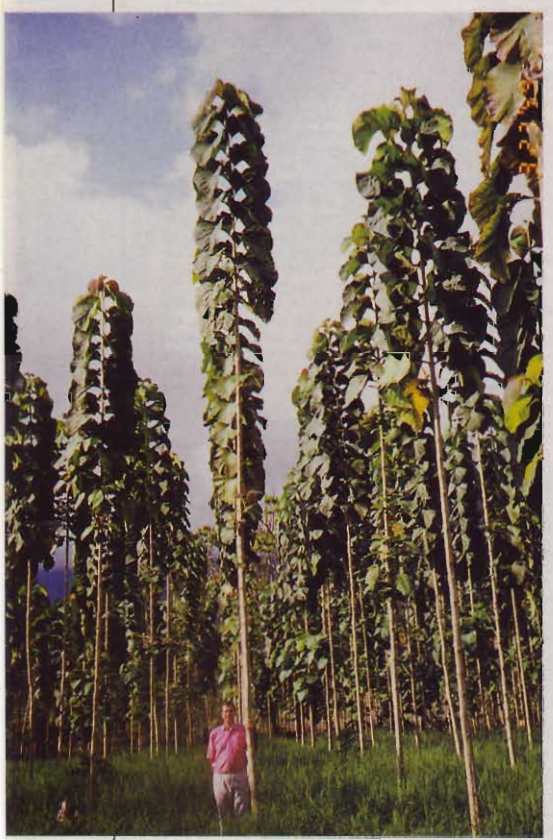

Steve Brunner stands among two-year-old teak trees on a Tropical American Tree Farms' plantation in Costa Rica.

As he conducted business in Costa Rica for 20 years, Steve Brunner saw hillsides gradually being stripped of lush rainforest. Then, in 1991 he laid out a plan to start replenishing that loss and make a profit, too.

He and his wife, Sherry, founded Tropical American Tree Farms, a Costa Rica-based managed forestry company that contracts to grow selected species of tropical hardwood trees from seedlings. The payoff for clients begins at about eight years after planting and ends when all the contracted trees are harvested. As the trees grow, they accrue dividends of size and quality. According to the Brunners, $3,400 invested in 100 planted teak trees yields about $100,000 over 25 years. "The client can opt for the yielded lumber and have it shipped after each cutting," says Steve. "Whatever the client wants."

Besides providing investment for profit, the annual planting of tropical trees reforests about 4,000 acres. And the Brunners have protected nearly 3,000 acres of rainforest on their lands and have set aside to naturally regenerate some 1,200 acres. They hope that their operation serves as a positive example of a for-profit solution to the disappearing rainforest. For their efforts, Tropical American Tree Farms was given the Association of Woodworking and Furnishings Suppliers' 1999 environmental achievement award. Call 800/788-4918. Website: http://tropical-hardwoods.com; e-mail to info@tropicalhardwoods.com.

HOW MUCH WOOD...

...can a wood truck truck?

Huge Douglas fir logs in convoy through a western Washington town drew little apparent attention 60 years ago.

Al Guenther, a *WOOD*® magazine reader from Bonita Springs, Florida, sent us this old photographic postcard. Taken in western Washington in the late 1930s or early 1940s (based on the approximate vintage of the trucks), it graphically portrays just how huge Douglas fir from old-growth forests was back then. Based on some admittedly rough calculations, Al guesses that each log might contain 28,000 board feet of wood! We welcome your estimates.

Canada's Crown Lands

Canada has about 1 billion acres of forestland compared to the 730 million acres in the United States. But while private ownership dominates in the U.S., it's the other way around north of the border. There, 80% is held by the various Canadian provinces and are called Crown Lands. The federal government holds another 11%, while individuals and companies own the rest.